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ABSTRACT

This document summarizes the activities of the 1971 Southern Research Conference in Agricultural Education. Concerned with the apparent laxity in attitude toward research, conference members chose as their motto, "Regaining the Initiative for Research in Agricultural Education." Presentations included speeches concerning the need for research, the status of occupational education, evaluation of programs, and the change process in education. Included in the document are the addresses delivered by the 17 guest speakers, a conference summary, announcements of plans for the 1972 meeting, and a list of the names, occupational titles, and locations of the conference members. (SN)

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PROCEEDINGS

OF THE

20TH ANNUAL

SOUTHERN RESEARCH CONFERENCE

IN

AGRICULTURAL EDUCATION

Regaining the Initiative for
Research in Agricultural Education

CLEMSON UNIVERSITY
CLEMSON, SOUTH CAROLINA

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PROCEEDINGS

OF THE

1971

SOUTHERN RESEARCH CONFERENCE

IN

AGRICULTURAL EDUCATION

July 28, 29, and 30, 1971
The Clemson Holiday Inn
Clemson, South Carolina

J. Alex Hash, Chairman

Robert T. Berson, Secretary

CLEMSON UNIVERSITY
CLEMSON, SOUTH CAROLINA

Front row, left to right: Cecil H. Johnson, Jr., Willie F. Jackson, Eldon E. Heathcott, Vanik S. Eaddy, J. Alex Hash, David G. Craig, William L. Hull, Texton R. Miller, and Frederick K. T. Tom
Middle row, left to right: Robert H. White, Howard I. Downer, Bruce Simpson, S. Douglas Patterson, James E. Christiansen, Charlie M. Curtis, James F. Shill, and James P. Key
Back row, left to right: L. D. Virdure, James I. Dowson, Lloyd P. Jacks, Harold F. Landrith, Frank R. Stover, Earl T. Carpenter, Earl S. Webb, and Robert T. Benson

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FIRST SESSION

Chairman: Earl T. Carpenter, Head
Agricultural Education Department
Clemson University

Secretary: Eldon E. Heathcott, Assistant Professor
Agricultural Education Division
Murray State University

REGAINING THE INITIATIVE FOR RESEARCH IN AGRICULTURAL EDUCATION*

Frederick K. T. Tom
Cornell University

Thank you and a pleasant good morning to you all. "Them's" mighty fine sentiments you expressed. When Thomas Edison was introduced in a similarly flowery manner, he said, "Remember, I was only the product of one of my father's earliest experiments. Besides, flattery won't hurt you if you don't inhale, and I've been holding my breath while you've been talking."

Speaking of holding one's breath, I can without fear of contradiction, point out the most nervous person in the audience. He's the chairman of your program planning committee, Professor Alex Hash, and right now he's wondering what I'm going to say. You see, when I was contacted to speak for an hour on the theme of this conference, I asked him what was wanted. He replied by letter, and I quote:

> I am enclosing the minutes of last year's conference and a program for the 1969 conference. These, together with the current conference program, should give you something of the flavor of our conferences and provide some guidance for preparing your address. Use your own discretion in preparing your remarks.

He allowed me such a wide latitude of freedom that he simply doesn't know what I'm going to say.

That reminds me of the story of the young minister-to-be training under the tutelage of the master preacher. "Sir," the young man said one day, "Why is it that unlike as in your case, when it's my turn to preach, hardly anyone shows up?" The old man replied, "That's because you labor

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* Keynote address presented to the participants of the 20th Annual Southern Research Conference in Agricultural Education, Clemson University, Clemson, S. C., July 28, 1971.

so hard writing out your sermons. While you're doing that, the devil is perched on your shoulders, and when you're through, he skips away and tells everyone what you're going to say. Since they know what you're going to talk about, they stay away. In my case, when I walk into church on Sunday, not even the good Lord knows what I'm going to say!" In keeping with this story, not knowing what my remarks will be, Professor Hash is undoubtedly as nervous as the man with ants in his pants.

Even if he doesn't know what I'm going to say, Professor Hash's material did provide me with some insight to allow me to decide, rightly or wrongly, toward what goals or objectives my remarks should be directed. Why am I speaking today? What desired outcomes prompted me to choose the content which is to follow? I once heard a speaker discussing why doctors, professors, lawyers, teachers, and others attend professional improvement conferences. "The main reason," he said, "was that these people wanted to be reminded to do what they had forgotten to do." You and I know that one of the most important of all learning principles is that what is learned is often quickly forgotten. Forgetting is to be expected. It can be anticipated. Therefore, we must adopt the principle of frequency, the principle that says learning is enhanced and retained if it is repeated frequently. Just as you arrange for your students to engage in repetitive exercises in computing means, medians, modes, correlation coefficients, chi-squares, analyses of covariance, etc., etc., etc., we, too, can afford to take time out to remind ourselves of some of the main concepts relative to research in agricultural education. In so doing, perhaps each of us in his own way, may "re-charge" his intellectual battery, will engage in the activities of this conference with increased vigor, will leave Clemson with renewed pride in the profession, and more important, will leave

Clemson with the desire to help regain the initiative for research in agricultural education.

If we are to regain the initiative, perhaps we can start by reflecting for a moment or two upon some of the salient features of our program in vocational agriculture, of what might we be proud. Among these notable features we might list the following:

1. The degree to which we have provided actual practice as a part of the instructional process. Starting with the use of the project method and expanding to include land laboratories, and now, placement for actual work experience, the concept of learning through doing has been one of vocational agriculture's strongest points.
2. The extensive use of real problems drawn from members of the class as a basis for systematic instruction. No other field of vocational education has a better record of this than vocational agriculture. We can all agree that when real problems faced by class members are used in the teaching-learning process, the chances for teaching success are increased immeasurably.
3. The manner in which our vocational agriculture students have always been directly involved in the actual search for solutions to the problems posed in their lessons. We've capitalized upon the tremendous source of energy and vitality represented by students to the end that they themselves become masters of their own progress in learning. We have pioneered in utilizing the problem solving method to the point where our students

have increased their ability to adjust to the rigors of the occupational world.

4. Our use of performance objectives as a basis for instruction. Although our objectives have never been as clearly stated as Robert Mager would recommend, nevertheless, ours have always included some element of performance. I can remember back more than 35 years ago when I enrolled in my first Smith-Hughes vocational agriculture class. Even then, one of the objectives my agriculture teachers had was to have me learn enough about hogs that I could produce a one-ton litter in six months. Performance standards have changed since then, but nevertheless, the leaders of our profession had in their early years, adopted the concept of performance objectives which seem to be so in vogue these days.
5. The caliber of our leadership training program as exemplified in the FFA organization. A panel of informed jurors would surely credit this organization with making truly significant contributions to the development of character, citizenship, dependability, responsibility, and so on. Thus it is with pardonable pride that we can gaze upon the organizational efforts of other youth groups and note that so often they emulate what the Future Farmers of America has to offer.
6. The standing researchers in agricultural education currently hold. Although I could be accused of

bias, of stating an unwarranted conclusion, I believe that we in agricultural education probably have conducted systematic research for a longer period of time than have any of our fellow groups of vocational educators. Even the manner in which we have continuously published our findings in Summaries of Studies has served as a model to other groups interested in disseminating their research results. With respect to the quality of our research, in answer to the question, "What is the state of research in agricultural education?" this is what the Southern Region's own eminent scholars and researchers, Earl Carpenter and John Rodgers, had to say:

> "It depends on which scorecard is used. Compared to research in other vocational fields, it may be considered quite good. When compared to the needs of the profession, the job has only begun."

I could continue, but the point is being made that we have done more than merely a creditable job in vocational agriculture and that we have achieved a measure of success particularly in teaching our subject. We don't need to be defensive at all! However, as Harry Kitts titled his last editorial in the Agricultural Education Magazine, "Let's not rest on our laurels."

Are there new fields to conquer? Is there some other aspect of our profession that would challenge us? Your program planning committee apparently believes there is. They've picked the area of research and suggest that we agricultural educators should regain the initiative. How can we go about this task? How do we regain the initiative?

We might start by being realistic and admitting that most of us were not trained to be researchers of the first order. This is a sad but nevertheless true commentary. As a consequence, much of what we have done under the banner of research has not been of the best quality. J. David McCracken of Ohio State University, after reviewing previous critiques of research, such as those by Carpenter and Rodgers, Robert Warmbrod and Lloyd Phipps, Gene Love, and H. M. Hamlin, grouped major criticisms into four areas, and I quote: a hesitancy to tackle the real substantive and critical problems facing the profession; a lack of involvement by teacher education staffs in long-range programmatic research efforts; a failure to utilize sophisticated research designs resulting in questionable validity of research findings; and little effort toward effective dissemination and implementation to move research findings off the shelf and into the classroom. Professor McCracken goes on to say that of the 161 agricultural education studies completed in 1968-69, 57 percent were master's papers, 32 percent were doctoral dissertations, and only 11 percent were staff studies. Yes, 11 percent. Furthermore, he classified the research completed in the following types: experimental design, 14 percent; ex post facto design, 16 percent; and survey design, 70 percent. Yes, 70 percent.

The above is a broad picture of research in agricultural education, a picture made up of the contributions of hundreds of colleagues. What about the quality of our individual efforts? Does the big picture accurately portray our product? Does the shoe fit? None but each of us can answer that question, and as you reflect upon it for a minute, let me recite a poem, the work of an anonymous poet:

The Guy in the Glass

When you get what you want in your struggle for self,
And the world makes you king for a day,
Then go to the mirror and look at yourself,
And see what that guy has to say.

For it isn't your father, or mother, or wife,
Whose judgment upon you must pass,
The fellow whose verdict counts most in your life,
Is the guy staring back from the glass.

He's the feller to please, never mind all the rest,
For he's with you clear up to the end,
And you've passed your most dangerous, difficult test,
If the guy in the glass is your friend.

You may be like Jack Horner and "Chisel" a plum,
And think you're a wonderful guy,
But the man in the glass says you're only a bum,
If you can't look him straight in the eye.

What do we do if we can't quite look that feller straight in the eye? I'm reminded of the farmer who made a short term loan. Due to unfortunate circumstances, he experienced a crop failure and was unable to meet his payments. He approached the banker for a second loan and naturally ran into some reluctance. Finally, the banker weakened and said, "I had an accident long ago and have a glass eye. Did you know that?" "Nope." "Well, if you can tell me which it is, I'll grant the loan." There they were, staring at each other. Finally, a smile appeared on the face of the farmer, and he said, "That one." "Right! How did you know?" "I saw a glimmer of pity in that eye."

But back to the topic at hand. I was asking, "What do we do if we can't quite look the fellow in the mirror straight in the eye?" Suppose the shoe does fit, though not perfectly, at least tolerably well? I suggest that we each resolve to give more attention to improving the quality of research. Let me digress and cite an old, albeit still appropriate, article from Time magazine. I'll quote or paraphrase a few sentences:

Yale's classic example of a gut course was Tennyson and Browning taught by the late _____, who reportedly never gave anyone less than a B. Harvard's football players have an inexhaustible interest in Slavic folklore; when Slavic 146 was last offered, the entire team huddled for the first lecture . . . Generations of gentlemen scholars have lazed through archaeology at the University of North Carolina, where the brilliant _____ has taught more students (up to 658 in a single class) and flunked fewer of them than any other professor in the university's 170 years . . . At the University of Michigan, astronomy is the venerable hands of a first-rate scholar with a grandmotherly concern for athletes. In her painless introductory course, says one resentful girl, "A is for athletes, B is for boys, and C is for coeds" . . . Equally easy at Wayne State is "Modern Poetry" taught by Pulitzer Prize winner _____, who mostly reads poetry aloud. "Real appreciation is the result," says one student, "But there's no final exam, no term paper, and no strain."

Even we at Cornell can find instances where we may have compromised on quality. In a recent letter to the editor of our Cornell Chronicle, an irate professor wrote something like this: "I would like to inform the faculty of a positively stupid and incredible action taken last week by the Arts College Educational Policy Committee. By a vote of 5-2, the committee granted three credit hours to 10 students who had "taught" themselves a course in children's literature . . . The prescribed syllabus

included "Alice in Wonderland," "Pinnochio," "Where the Wild Things Are," "When We Were Very Young," and "Now We Are Six."

The reason for bringing up these incidents of campus standards, the reason for poking fun at these prestigious institutions, Yale, Harvard, Cornell, North Carolina, is not to malign them on the basis of limited data, but to remind us that truly professional workers in education, common folks like you and me, should constantly be alert to the need of continually improving the quality of the education enterprise. Education is our business! Surely, the needs of our society, historically expressed through the passage of the Smith-Hughes Act, and more currently, the Vocational Education Act of 1963 and the Amendments of 1968, confront us with ever present challenges to contribute to the welfare of our citizens through preparing them for gainful employment.

What better way is there to prepare persons for such employment than by offering them education which research shows is of the highest quality possible under present circumstances? As Milo Peterson of the University of Minnesota has said, "Research is the lifeblood of any educational endeavor." We agree that research cannot be justified on grounds other than it contributes to the improvement of education, and in my book the most important aspect of education is teaching. I hope that many of you can subscribe to the sentiments expressed in the familiar poem entitled, "The Bridge Builder."

An old man going the long highway,
Stopped an evening, cold and gray,
At a chasm--vast, deep and wide,
Through which was following a sullen tide.

The old man crossed the twilight dim,
The sullen stream of no fear to him.
When safe upon the other side,
He built a bridge to span the tide.

"Old man," said a fellow pilgrim near,
"You're wasting your time by building here,
Your journey will end with the ending day,
You never again will pass this way."

The builder lifted his old grey head,
"There passeth after me a youth," he said
"This stream which has been but nought to me,
To that youthful lad may a pitfall be.
He too must cross in the twilight dim,
Good friend, I'm building this bridge for him."

Isn't it wonderful to be able to say that we are teaching because we hope to serve humanity through the noblest means possible, namely, the transmission of knowledge? Isn't is wonderful to be able to say that we are teaching because we hope to inculcate in others the burning desire to seek an education? Isn't it wonderful to be able to try to strike the latent spark in hundreds who might not otherwise be so influenced? Yes, I congratulate those of you, who like the bridge builder, can say, "I am teaching because I hope to help youngsters bridge the gap between ignorance and knowledge, between discrimination and tolerance, between dissatisfaction and fulfillment, between poverty and security, between failure and success. And may we invite those amongst us this morning whose faith in our profession might perchance have been shaken for one reason or another, to take this opportunity to rededicate ourselves to becoming more efficient and more effective researchers of our chosen specialities.

"Becoming more efficient and more effective" is a phrase I've reflected upon in thinking about regaining the initiative for research. What is the difference between research effectiveness and research efficiency? The two are closely related, but it seems to me that a person is effective when he has achieved the research objectives with which he started. By way of contrast, we may look upon research

efficiency in terms of the amount of time required to achieve the desired results. For example, did it take one year, or two, or three to complete the project? We all know that just as time is valuable to the farmer, the worker, the industrialist, the businessman, so too is it important to the researcher. How often have we lamented: "I wish I had more time to do research!" Naturally it won't be easy to find more time, but like the farmer who tries to grow two ears of corn or two blades of grass where only one grew before, we can each look critically at our own research methods and in order to regain the initiative we seek, we must want to improve both our effectiveness and our efficiency.

What else can we do? It is hard for an old man to say this, but I suppose those of you under 35 might well advise us old-timers to step aside and let you carry the research ball. However, if we would realize that we can't do today's tasks with yesterday's tools, we'd be more aggressive in seeking out opportunities to upgrade our own research skills. That's right. It's impossible to do today's tasks with yesterday's tools and remain in business tomorrow. I'm reminded of the story of the old man from the hill country who took his first trip to a large city. Walking into one of the skyscrapers, he saw a doorman standing by a special kind of door. An old lady stepped in, a light flashed red, and she was gone. A moment later a bell sounded, the door opened, and out stepped a beautiful young girl. "By golly," said the old man, blinking his eyes, "They've surely got wonderful machines in this here town. I should have brought my old woman with me!"

Be that as it may, we can, with a great deal of sincerity, congratulate those of you who manage to find the time to improve yourselves by not falling behind in your reading of the journals; by maintaining your

contacts with the real world of work; by making worthwhile use of your sabbatic leaves; and yes, by attending conferences, workshops, and seminars like this one. At any rate, all of us should guard jealously our right and obligation not to stagnate, not to allow the flow of progress leave us by the wayside, not to allow our research tools to become dull, and above all, not to allow the bright spark of professional pride to flicker out. I am suggesting that we can regain the initiative by re-training ourselves to meet the competition of present day research needs, and each of us, in his own way must evolve the re-training program most suitable for himself. Even our conference program is making a frontal attack on the matter of upgrading ourselves, for James Key will discuss with us "Innovative Methods for Introductory Courses in Educational Research."

Although each of us must make individual choices regarding alternative routes to re-training, let us note that there are others who face identical problems, and that there is, indeed, strength in union, or, if you will, misery loves company. Nevertheless, oftentimes, by combining our efforts, we can become more productive than we could be working alone. The following poem illustrates this philosophy well:

> Hamlin, Herbert M. Agricultural Education in Community Schools, Interstate, Danville, Illinois 1949, 488 pp.
>
> Page 134
>
> "Stand off by yourself in your dreaming,
> And all of your dreams are in vain;
> No grandeur of soul or spirit
> Can man by himself attain.
>
> It is willed that we dwell as brothers;
> As brothers, then, we must toil;
> We must act with a common purpose,
> As we work in a common soil.

And each who would see accomplished
The dreams that he's proud to own,
Must strive for the goal with his fellows,
For no man can do it alone."

There's a theory of synergism which says that 2 plus 2 equal more than 4. When applied to research, I am saying that instead of going it along, we gain by soliciting the participation of one or more colleagues. Time was when I thought the "lone wolf" approach was best, but now, I realize that one's productivity frequently improves when the project includes co-workers other than the researcher himself. Why not invite others to share in directing a study? Why not show our proposals to other colleagues for their appraisal? Why not consult the specialists with which every institution is blessed for their suggestions? The method of old was to do it alone. Today, the in thing is "inter-disciplinary team-type" research. I believe it would behoove us all to get with it.

What must we do to get with it? In a word, we must re-double our efforts to do quality research. It is difficult enough to define "research," much less "Quality research." Nevertheless, in the spirit of wanting to remind all of us, myself included, of some of the more important criteria of quality research, I enumerate the following four major points chosen for emphasis in today's presentation:

1. Select only the most important problems on which to lavish our limited research resources. Pick those the solution of which would make a significant impact on agricultural education in general and on the student in particular. Would the problem chosen, when solved, make a practical contribution of easily recognized worth? Have problem satisfy what Cayce Scarborough

of North Carolina calls the "So What" test. Select problems which David Craig of the University of Tennessee would say have tentative solutions which grow out of a sound theoretical framework. Ask the right research questions and state them well, for a problem well stated is a problem half solved. Where do we find the right questions or the good problems? Robert Taylor of the Ohio Center may have answered our question when he said, "Perhaps the most fruitful areas for research might be some of our own unexamined assumptions, the historical accidents, the folklore of our profession that has been handed down from generation to generation." These "sacred cows" of education may well warrant additional attention. Bob Taylor also reminds us that in the selection of a worthwhile problem, we shouldn't expect every research project to be an "educational penicillin or a pedagogical Salk vaccine." Nevertheless, to regain the initiative for research in agricultural education, we can well afford to stop, look, and listen before selecting our research problems.

2. Select an area of study in which you and your immediate colleagues hope to achieve research distinction. I'll not delve into the matter of how one chooses this area of study except to say that the methods vary all the way from logical analysis to downright intuitive judgment, tainted perhaps by the knowledge of from where the funding is to come. The main factor which should be present is that the area selected should possess the power to grip you and command your attention

which you cheerfully give in sufficient amounts to bring the project to fruition. Once the area has been selected--it could be youth organizations, curriculum, evaluation, program planning, adult education, methods of teaching, accountability, career exploration, teacher education, individualized instruction, psychomotor learning, or what have you--once the area of study has been selected, carefully divide that area into significant problems, then program those problems for systematic and coordinated attention in a regularized time schedule. Interest your colleagues in joining you and avoid what Jerry Moss calls "unrelated episodic" research. Furthermore, we can't cover the waterfront so must select problems that lend themselves to the widest possible generalizability.

3. Practice sound research methodology. Allow yourself a lot of time for I understand there's a Murphy's Law which says that "if there's anything which can possibly go wrong on research, it usually does." Make full use of the research literature and capitalize upon what has already been done. Clarify your assumptions and state your hypotheses clearly. Design your study to collect the needed data effectively and efficiently. Control the independent variables and evolve a defensible sampling procedure. Use the method of analysis that will pay the biggest dividend with the type of data you have. Unlike the drunken man who uses the lamp post "for support rather than illumination," use statistics to clarify instead of 'becloud an issue'. Insure the

validity and reliability of all instruments used and use data tables that are simple and accurate. Draw conclusions only when warranted by facts. In short use the proper tools.

The above admonitions undoubtedly sound familiar to you. Of course, you and I have used them countless times with our graduate students. But it's better to teach by action than by percept. We need to practice instead of to preach. We've got to play a good game not only talk it, for as Ralph Waldo Emerson said more than a century ago, "What you are stands over and thunders so loud, I cannot hear what you say to the contrary." The poem, "The Demonstration Way," author unknown, dramatizes this point poetically.

The Demonstration Way

I'd rather see a lesson
Than hear one any day.
I'd rather you would walk with me
Than merely show the way.

The eye's a better teacher
And more willing than the ear.
And counsel is confusing;
But example's always clear.

The best of all the teachers
Are those who live their creeds,
For to see good put in action
Is what everybody needs.

I can soon learn to do it
If you let me see it done.
I can watch your hands in action,
But your tongue too fast may run.

And the counsel you are giving
May be very fine and true,
But I'd rather get my lesson
By observing what you do.

Yes, to regain the initiative for research, we simply have to use the tools available to us.

4. Because good research is but for naught if its findings are not implemented, my final suggestion is that we need to set in motion improved systems of disseminating these findings to the consuming public. Experience indicates that we are simply not utilizing the vast body of knowledge that has already been accumulated. Sometimes our publications are written in such language as to be almost useless to the practitioner. Other times, their distribution leaves much to be desired. Then too, when research indicates the superiority of one practice over another, in-service training programs to upgrade present staff members fail to materialize or do so too slowly. Following the research phase should be a well-coordinated development step. For this reason, I place a high value on the activities of those of you associated with research coordinating units. In short, let's not stop after having done a good piece of research. Let's go that extra mile and become involved in putting into practice that which we have discovered. That extra effort cannot help but propel us forward in our attempts to regain the initiative for research in agricultural education.

In this regard, tomorrow's symposium will be devoted to the topic "Strategies for Accelerating Educational Change" and we can all look forward to some exciting ideas.

You may have noticed in my presentation that I made but little if any reference to suitable topics or problems for research. May I leave that to the many other program participants from the states of the

Southern Region who will treat, in the days ahead, a wide variety of studies exemplifying those which in their judgment are of value to us.

In conclusion, let's see what I've been trying to do. Professional educators that you are, you have recognized that in the last forty-five minutes or so, I really didn't attempt to bring about any important cognitive changes, nor any psychomotor changes. You know that I was dealing with the affective domain, appealing to those attitudinal aspects that might cause us to want to get up and go, to get off our onion skins and to do some significant research, to crank out research proposals, and to discover some really new knowledge. In the final analysis, I was merely repeating a truism. If we want to regain the initiative for research in agricultural education, we've got to do it. George won't. We must. To get off the launch pad, we must crank up the boosters. We can't turn to anyone else. To illustrate the point, let me quote, somewhat in jest, the ditty appropriately entitled, Passing the Buck, by an anonymous writer.

The College Professor Says:

"Such rawness in a student is a shame,
But high school preparation is to blame."

The High School Teacher Remarks:

"From such youth I should be spared,
They send them up so unprepared."

The Grammar School Teacher Observes:

"A cover for the dunce's stool,
Why was he ever sent to school?"

The Kindergarten Teacher Whispers:

"Never such lack of training did I see,
What kind of person must his mother be?"

The Mother Replies:

"Poor child, he is not to blame,
His father's folks were all the same."

If I had to put my faith in any one group of professional educators, I'd place my bets on the agricultural educators, and I'm content to let the buck stop right here.

Now that I'm about through, I can say with greater truthfulness that I've indeed enjoyed appearing on your program. Somehow, ordeals are so much less frightening after the fact. But I must make a candid confession. I myself, being human, have not always practiced what I preach. I've not always liked what I saw when I looked into the mirror. Thus, it may not be surprising that I have accepted the invitation of the program planning committee to spend as much time at this conference as possible. You see, I too need to re-charge my mental battery, to upgrade myself, and more important, I want to join you in the mutually beneficial and exciting task of regaining the initiative for research in agricultural education.

Best wishes for a successful conference.

PLANNING FLORIDA PROJECT AGRICULTURE

S. Douglas Patterson
University of Florida

While reading an article in the current issue of Reader's Digest this weekend, I was vividly reminded of the theme of our conference "Regaining the Initiative for Research in Agricultural Education." The article is entitled "Florida Fires the Pork Chop Gang," in which the author describes the new breed of men that have been elected to the Florida legislature in the last three years. The author stresses that the new breed of legislators are progress-minded and bent on reform. One of the leaders to which he refers is a lawyer from urban Miami, Representative Marshall Harris, chairman of the House Appropriations Committee.

Approximately four months ago, Representative Harris walked into the office of one of our top State Agricultural Educators, unannounced, introduced himself, sat down across from the educator and looked him squarely in the eye and opened with a question like this: "What would happen to the people of this state if your job was eliminated tomorrow?" This type of question and the attitude it indicates is very effective in stimulating "Regaining the Initiative for Research in Agricultural Education."

This was a vivid illustration of the demand for accountability that the citizens of our state are achieving through our legislature. They want to know what our services are, whether or not our services are needed, and whether or not we are doing an adequate job.

The hard data to answer these questions has not been available. This has been pointed out by our Department of Commerce in this quotation: "Except in a general way, relatively little is known about the current

changes in the number of workers employed in each important occupation in the occupational structure of the industry as a whole."

The need for this missing information has also been emphasized by the Florida State Advisory Council on Vocational and Technical Education in this statement: "In order to make intelligent decisions on educational programming for the Vocational, Technical and Adult areas, these types of questions need to be answered on a state-wide basis: "What are our industries' needs, both in quantity and quality, by specific job categories? Is the current curriculum designed to meet the needs as stated by the industry?" The stating of these questions emphasizes the fact that adequate hard data is not available concerning agricultural occupations and agricultural education programs, yet these agencies have turned to the inadequate data that is available to make projections and predictions. The Department of Commerce has used the following figures from the division of labor in projecting the need for employees: "Employment and agriculture, forestry and fisheries equaled 7.2% of the total employment force in 1960 for the State. It was 6.2% in 1968, and is projected to be 4.8% for 1975." It is the opinion of agricultural educators that these figures and projections are gross under-estimates, primarily because of the limited definition of agriculture under which the Department of Labor operates. The same inappropriate information has affected the State Advisory Council on Vocational and Technical Education. The person writing their annual report states: "Agriculture makes up five to ten per cent of the labor force. Agricultural Education programs should not be expanded."

This inadequate information and inappropriate conclusions have not as yet had strong detrimental effects on the progress of agriculture or agricultural education in the state. A total of 529 instructional units

were recommended for approval for the 1970-71 school year for agricultural education in the State of Florida. These included pre-vocational units, secondary units, post secondary units, and adult education units. This represents a twenty per cent increase over last year. Student enrollment in the secondary education programs of the 1970-71 school year were at 8,070 for productional agriculture and 13,469 in non-farm agriculture programs. This growth indicates the progress that agricultural education continues to enjoy.

The quality of Agricultural Education programs also enjoys continued progress. The curriculum in secondary education programs have changed from the agriculture 1, 2, 3 and 4 concept to a two-year basic core of agricultural science followed by a selection from any of thirty-six advanced courses designed as preparation for occupational clusters. At the same time, a program for initiating pre-vocational education in agriculture is gaining support along with the expansion of post-secondary and adult education programs.

These growing and changing programs have experienced growing pains which have continued to stimulate the need for research in Agricultural Education. Some of the primary areas of concern result from teacher shortage. Research is needed to answer the questions: "What is the minimum pre-service education needed for agriculture teachers? Are education masters programs for persons with technical agriculture degrees effective in teaching preparation?"

With the growing number of new teachers, other areas of concern have arisen: "Is the itinerant teacher-educator an effective in-service tool? Do Master's degree programs really make a difference in quality of instruction?"

With our changing curriculum, new problems have also arisen. We now must again face the questions: "What should be taught? How can occupational changes be projected? What should we teach teachers who will be teaching for agricultural occupations?"

In attempting to analyze the total problem of the needed research in Agricultural Education, we attempted to visualize the total world of work in agriculture. Assuming that we can group together related occupations into common occupational clusters ranging from the unskilled through the professional levels in agricultural industry, we visualize a series of various levels and types of educational programs to serve the total occupational spectrum. We also visualize the coordination of a total agricultural education program which would include the institutional agricultural education, ranging from the occupational awareness programs in the elementary school through the junior high, the high school, area school and junior college, senior college and graduate school. These institutional programs would be coordinated with the agricultural education programs carried on by industry such as in-service training, special group training, technical up-grading and other types of educational programs. These would also be coordinated with the total extension education program that affects agricultural occupations.

We also visualize an improved articulation system which (1) would eliminate the gaps in adequate training for specified occupational clusters in agriculture; (2) would enhance the movement from educational programs into the world of work and back; (3) would reduce the amount of duplication in training and educational programs for agricultural occupations; and (4) would undergo a constant up-grading and revision of the curricula

as declining occupational clusters were identified and as emerging occupational clusters were uncovered.

In effect, we visualize the education of the agricultural employee as a result of the combined efforts of the extension programs, industry education programs and the public institutional education programs. The coordination of such a program would require a systematic concentrated effort on the part of representatives from each of the three educational groups. To this end, we designed the program that we refer to as Florida Project Agriculture. The name was selected to emphasize the concern for the total world of work ir agriculture and the corporation of all phases of the agricultural industry.

The purpose of Florida Project Agriculture is to study the educational needs and occupational opportunities in Florida's agricultural industry and prepare appropriate curricula materials for selected programs. All occupations identified as requiring employees with knowledge or skill in agriculture will be studied. Occupational information will be analyzed and organized by curriculum designers and program planners at all levels of agricultural education.

The occupations to be studied will be identified by agri-businessmen with the cooperation of agricultural educators. The selected programs for which curricula material will be designed will be selected by agricultural educators with the cooperation of data from agricultural businessmen. The program is to serve all levels of agricultural education ranging from kindergarten through graduate programs.

Objectives of the project are: (1) Identify the number and types of occupational opportunities in the agricultural industry; (2) Identify the skills and attitudes, understandings, and other abilities needed by

agricultural employees; (3) Develop guidelines for designing educational programs that will develop these competencies in present and potential agricultural employees; (4) Develop guidelines that can be used in coordinating agricultural education programs among the various institutions; (5) Prepare agricultural educators to utilize the data from the project in curriculum development; and (6) Develop a system for monitoring and forecasting employment needs in agriculture.

To accomplish the primary objectives that have been identified, five programs or phases have been designed. The purposes of the phases are as follows:

> The purpose of the demand data collection phase is to collect and summarize on a county, area and state basis data concerning the number of persons employed in agricultural occupations and the types of occupations in which they are employed.
>
> The purpose of the agricultural industry projection phase is to project major changes in the agricultural industry and forecast their effects on manpower requirements.
>
> The purpose of the job analysis phase will be to conduct an indepth job analysis of selected clusters of agricultural occupations and prepare the findings for use in curricula improvement.
>
> The purpose of the curricula improvement phase is to provide guidelines, curricula content information and teacher training sessions which will contribute to the improvement of the total agricultural education program.

The purpose of the data monitoring phase is to initiate an on-going system which will interface manpower demand and manpower supply information to provide a basis for periodic program adjustment.

To implement the study, the agricultural industries in the state have committed themselves to the primary responsibility of (1) obtaining occupational information within each major industry; (2) identifying agricultural employers who will participate in various segments of the study; (3) securing the cooperation of agricultural employees to provide the information needed; and (4) assisting in analyzing the data and projecting manpower requirements.

The five phases that have been designed for the project cover a span of about forty-two months. The Planning Phase terminated June, 1971. The Program Monitoring Phase is scheduled to terminate June, 1974.

The agricultural industry will play a vital role in the accomplishment of this project. It will assist in evaluating and designing data collection instruments. It will assist in providing the data and in analyzing and summarizing data. The agricultural industry will have the primary responsibility of projecting major agricultural industry changes that will effect the employment patterns. The agricultural industry will assist in providing information and cooperation in the occupational analysis phase. Representatives of the agricultural industry will participate in designing curricula based on the analysis of the manpower demand and will assist in evaluation and revision of curricula at periodical intervals. Agricultural industry will also participate in the planning, providing of data, and data analysis in the Program Monitoring Phase.

The first phase in which the basic data will be collected is a manpower demand analysis phase which will consist of two types of data gathering. A mail survey will be conducted by the agricultural organizations. The total membership in agricultural organizations will be surveyed and the data will be used to describe the organization make-up and to analyze the organization patterns in the industry. An interview survey will be conducted by agricultural educators of a sample of all employees within the agricultural industry. This information will be projected to provide statistics for designing both local, county and state-wide programs. A comparison of the results of these two surveys will be used to check the validity of the mail survey, to determine the representation of the agricultural industry in various agricultural organizations, and to identify appropriate participants for the manpower monitoring phase of the project.

To coordinate the participation and activities of the agricultural industry in the project, two types of agricultural industry representation committees will be utilized. The State Advisory Committee for Agricultural Education will serve as Advisory Committee and primary data collecting force for Florida Project Agriculture. The State Advisory Committee for Agricultural Education has organized ten sub-committees which will function in the various sub-industries of the agricultural field. The sub-committees represent the areas of agricultural resources, agricultural machinery, ornamental horticulture, fruits and vegetables, field crops, marketing, agricultural services, citrus, forestry and livestock. These subcommittees will serve as task forces which will organize and collect information from their industries to be utilized in the project.

Agricultural industry representatives will also participate in the county study committees which will be organized in each county of the state. The county study committees will include farmers, agricultural teachers, agricultural businessmen, extension agents, and representatives of agricultural governmental services. It will be the function of the county study committees to identify agricultural occupations, agricultural employees, and agricultural industry leaders within the county. The county study committees will also coordinate the data collection for each phase in the study.

In summary, we in agricultural education see the handwriting on the wall--"we can no longer be content with riding hobby horses and blaming our troubles on unsympathetic administrators or guidance counselors with inaccurate information."

In effect, "the people of the state and the legislature have put the 'monkey' on our back by demanding accountability through assessment of agricultural education programs." Therefore, we in agricultural education must (1) collect accurate occupational and educational information; (2) provide for continuing improvement of educational programs; (3) articulate educational programs for the most efficient utilization of the taxpayer's money; (4) involve the agricultural industry in educational programs; and (5) provide a favorable accounting of our services to the people of the state. To the end of meeting these requirements, we have designed Florida Project Agriculture.

SECOND SESSION

Chairman: Lloyd P. Jacks, Head
Agricultural Education Division
Murray State University

Secretary: Billy J. Vice, Instructor
Agricultural Education Department
University of Kentucky

A STATUS STUDY OF OCCUPATIONAL EDUCATION IN NORTH CAROLINA: A REPORT OF DESIGN AND PROCESS

Texton R. Miller
North Carolina State University

Thank you for the privilege of appearing on this program to discuss a recent study of Occupational Education in North Carolina. I consider this opportunity a professional honor and I trust that my presentation may be meaningful to you as educators and researchers. Perhaps it will provide some ideas for a similar study in your state and if it does this, then I trust you will be able to capitalize on the strengths and weaknesses of this study to produce a better study.

I should pause at this time to remind you that I am not a specialist in research as my presence here might imply. Even in this study, my role was one of coordination, organization, and administration. I depended upon others who were specialists in research design, sampling, statistics, and computer operation. Fortunately, these specialists were available, did cooperate, and (if I can do my part) we will have a meaningful study for us. At this point the study is not complete although it is summarized. It will be fall before it is published, after the faculty in our Division have become involved in the analysis and conclusions. For today, I have assumed that the design and process would be more important than a display of data.

The Idea

The study was conceived in the late fall of 1970 by the faculty of the Division of Occupational Education. We had been discussing over a period of a year the question of "What is Occupational Education?" Under a new Dean, from Harvard, by way of New Orleans School System, a faculty might

easily become involved in such a question. Inevitably, we became aware that we needed to know more about the status of occupational education as well as the definition. If we as teacher educators were to provide adequate pre-service and in-service programs, we should know considerably more about the scope, the needed scope, the situations in the field, the on-going process in the field. We seemed agreed that we did need to become more informed and decided to review the information available from state reports and studies conducted by others - graduate studies and staff studies.

Even while we reviewed the literature, we had some faculty who insisted that we needed to know more than the scope of occupational education. Some went so far as to propose a comprehensive evaluation of occupational education. Some even doubted the reliability of the state reports.

The Literature

Our review of literature was quite revealing. State reports were in a change-over process. Only enrollments, no completions, seemed available. State employment projections were based on such broad categories that relationships to curriculum needs were difficult to see. Master's studies were quite limited in scope and some based or drawn from state reports. Data on private schools and business-sponsored occupational education programs were sparse or non-existent. It was concluded, however, that the public schools and the community college institutions were the major sources of occupational education, and we should start with these two resources. What did we know about them?

Who Will Lead?

Then we stopped to consider that we had no research funds! Only a teaching budget! But the Dean was confident money could be found--somehow!

So we swallowed our big ideas about a comprehensive evaluation and determined to consider just a status study. And that's where I made my mistake. I had gotten involved in the idea, expressed an interest to Cayce Scarborough, nobody else volunteered, and I was chosen! I was surprised for we had several people who were more competent in research, I thought. And I knew some of them agreed with my assessment! Why not the Center for Occupational Education? Already committed! Two other reasons: (1) The Center focuses on regional research, (2) The Center sees more than a status study needed - evaluation is the goal - and a new "system" being developed is not yet ready. But they would cooperate--and they did!

The Objectives

These were roughed out to include: Who is being served? Who is doing the serving? Are programs consistent with the employment opportunities and manpower needs? Are the state goals and priorities being reached?

Financing

Then the "fairy godmother" arrived. I'm sure many of you know Dr. Joe Clary, Executive Secretary of the N. C. State Advisory Council on Vocational Education. Joe said: "We like what you are considering doing! Write us a proposal, very brief now (we were thankful for this), and we will try to fund it." And the Council did! They scraped up a budget of $20,000 which was enough to permit us to do an interview type study--send teams to the schools and community colleges to gather the data needed.

A Division Study

It was designed to be a "Division Study." We wanted to utilize

every member available from the Division of Occupational Education, School of Education. For two reasons: It would be a learning experience for the faculty to do this face-to-face study. Second, it should help us see ourselves more as a division, a team. Third, we were going to need manpower to gather the data before the end of public school year. The Dean put out a "sign-up list," and we had the volunteers to head the visitation teams.

Sample Design

It was my task to get help to design the study so we could see the potential of projecting to the state level. Dr. Charles Proctor, Department of Statistics, at N. C. State and a nationally recognized statistician, was eager to help. The final sample was drawn as follows: (1) all eight educational districts, (2) two administrative units from each, (3) three (or all available if less than three) schools from each administrative unit, and (4) four classes of students from each school, two of them as general education (English, etc.) and two of them occupational education.

The Respondents

Looking at the people to be contacted, we chose (1) all superintendents of the administrative units (16), (2) all principals of schools selected (38), (3) all teachers of occupational education, (4) all students from the above listed 4 classes, and (5) two occupational classes taught the previous year to furnish some follow-up type data.

Sample Selection Factors

Administrative units were chosen by computer using the factor of man-months allocations for 1970-71. Schools within the administrative units were also computer selected, using only schools with a twelfth grade and using the variable of number of total teachers in each school. One other

factor was considered: What should we do about the 20 percent sample of schools expecting a study team from the State Department to meet national guidelines for evaluation? These schools were scheduled to receive on-site visits at approximately the same date contemplated for our status study. We wanted to avoid the double burden to schools of two studies at the same time, so these schools were eliminated before we made our sample.

Classes or Programs

The technique for the class selection was rather interesting to us. We hoped to compare the characteristics of students in programs of occupational education with those of students in general education programs. Dr. Proctor recommended that we sample the two types of classes and depend upon questions in the instrument used to separate the students by programs.

The Sampling Task in the Field

The procedure for class selection was established as follows: Have the principal make a list of all occupational education classes taught at the second class hour of the day. Include the number enrolled by class. Repeat the process for the general education classes. Randomly select two classes from each list for the study sample. Arrange for the teachers of these four classes to use the study instrument with their students.

Control Class Sample Size

In the above procedure, one other point was made. Before taking the random sample of classes, group those occupational classes with less than 10 enrolled students with another class or classes to obtain a total of 10 or more students. Count these classes as one class. Repeat the process for the general education classes, but set the minimum number of students

at 20. This was the attempt to obtain for the sample, a more normal, acceptable class size.

Selecting the Community Colleges

Some variations were developed for sampling community colleges. Our objective was to picture educational opportunities available to people in sample geographical areas. Community Colleges chosen were those expected to service the most people from the randomly selected administrative units. Location of institution was the primary factor and size also became a factor. It seemed to be a natural selection in each case and we have evidence from the school administrator and the college president to support this contention.

Team Visits

A member of the faculty of the Division of Occupational Education headed the site-visit teams. Following the initial letter of announcement and invitation to cooperate in the study sent to each administrative unit superintendent and each community college president, the team leader took charge of securing the data. This meant selecting his team members, arranging a suitable date, and orienting the people to be involved.

As coordinator, I used a small committee and several orientation meetings with the team leaders to produce a general guide for the teams. It was suggested that (1) three to five members constitute a team, (2) that they gather the data during a two week period the last week in April and first week in May, (3) they should contact the president and superintendent first to orient and establish who would be working directly with them, (4) they use not more than two days at the school and bring the data back with them, and (5) they would probably need to orient the occupational

teachers in a group after school hours and the two general education teachers individually.

A Sample Team-Visit

Since I was one of the team leaders for two different administrative units, perhaps a review of my experience would be the most appropriate way to picture the way it worked out.

My telephone contacts with the administrators were most pleasant. In one case I followed up with a preliminary trip to the superintendent's office. In the other case, the superintendent asked me to work directly with his Director of Occupational Education. In both cases, on the first day of the on-site visits, my team of three members met with the superintendent, three principals, and the Director of Occupational Education at 10 a.m. in the superintendent's office. The principals were prepared with their lists of classes, and we used a deck of playing cards to make the random sample. That afternoon teachers were oriented more completely to the task of having the instruments completed in their classes on the following day. At one site, the orientation for teachers from all three schools took place at a central school. At the second site, each of my team took one school and had a similar meeting.

We completed the community college orientation that evening and got the data from all schools and community college by mid-afternoon of the next day.

We Had Some Problems

It may sound like a simple, easy plan, but it didn't work out perfectly. Most of the problems came when team leaders deviated from the guidelines. Some left the instruments to be mailed in. After initial contact with the head administrator, some failed to make personal contact

with the school personnel expected to work with him and arrived on the visit day to find communication had not reached the school level.

There were other kinds of problems. One administrative unit was having racial unrest and didn't promise any data from one of the sample schools. For another, a tornado hit close to the school on visit day, disrupting the electricity and students were dismissed. One community college politely rejected the project in the beginning and another turned it down on the site visit day.

Diplomacy and Persistence

How were these problems solved? Generally, by diplomacy and persistence. We had to recognize their viewpoints, and we had to sell them on the importance of their contribution. Positive factors for us were: (1) the legitimacy of this study supported by the State Department of Public Instruction and the State Advisory Council, (2) the fact that this study was a random, representative sample and 100 percent of the sample was needed, (3) the belief that any refusal was a lack of understanding of the importance, of the relatively small effort it would take, and of the fact that it was not an evaluation of a particular institution but an attempt to paint a picture of occupational education in North Carolina.

What Were the Results?

What information did we secure? All 16 administrative units and all 38 schools and all community colleges provided data. We expected 292 vocational teachers and got reports from 345. We expected 76 classes and got these. We received data on 3056 high school students. There were 1242 students in the community college sample, 47 administrators, 344 teachers. Our only major failure was an attempt to gather information on

students of a sample of last years' classes. Follow-up systems are not well established for some programs in some systems. Both high schools and community colleges had difficulty in supplying follow-up information.

The Computer

All our data were placed on computer cards except for the returns from the 16 superintendents and 15 community college presidents. Our analysis to date is only a count and percentage run.

We have attempted to look at students in occupational programs versus students in general education programs in terms of such characteristics as age, economic level and occupational goals but even this is not yet ready for release.

Community College Process

I haven't said too much about the community college process, but it was similar to that with the high school. We received data from the president on "administration" and "articulation;" from the teachers, students and administrators we gathered information on their characteristics and viewpoints. We limited our sample to two classes of students in (a) technical 2-year programs, (b) vocational programs - usually one year, and (c) occupational extension classes. For various reasons (generally the lack of classes available on visit day) our data on the extension classes may be too limited to utilize.

Development of Instruments

This was a true, team development. A volunteer committee of five persons took areas of their speciality and developed a first draft set of instruments. These I took to a superintendent, a principal, a teacher, and two students for testing. This was not enough, and our instruments can be improved. The open-ended questions were difficult to tabulate and

summarize. Two instruments were redesigned and still provided problems of completion by people in the field.

Summary

In summing up, I would venture three suggestions: (1) Don't underestimate the time to develop and test instruments and write-up the study. (2) Provide adequate orientation for the responders before gathering the data. (3) Bring the data back with you.

Thank you again for this opportunity.

DISCUSSION

Robert H. White
S. C. Advisory Council on Vocational Education

Howard I. Downer
University of Tennessee at Martin

Drs. White and Downer made several comments in relation to the two previous papers and led a stimulating discussion centering around the papers.

In reference to the Florida Project Agriculture paper, we will summarize some comments coming from the discussion. Generally the group was favorably impressed with the project and wanted to be kept up to date on its progress. Dr. Patterson indicated that industry was very cooperative and interested in the project and had provided much support thus far.

Some questions were asked concerning the year by year funding of the present project staff numbers. Dr. Patterson didn't feel these were problems now. Other discussion centered around the use of committees and technical aspects of the operation of the project.

In reference to the North Carolina paper, a few of the comments can be summarized as follows. The results of this study can be used with advisory councils and universities in preparing occupational education teachers. Study results can provide guidance in revising and updating present occupational education curricula at all levels.

Dr. White mentioned that we should not overlook state vocational education advisory councils as sources of information and in some cases as sources of funds. He also advised that presently the impact of advisory councils is unknown but should be utilized in university research and development plans. He further indicated his approval of the trend toward interdisciplinary studies and the improved research techniques being used.

Dr. Downer asked how can we help students identify occupational areas within agriculture since often the student only identifies agriculture as his field of speciality. This produced some good discussion and some ideas as to how others have handled this problem. No one solution seems to exist.

DEVELOPING A SYSTEM FOR STATEWIDE EVALUATION OF VOCATIONAL-TECHNICAL EDUCATION*

J. Dale Oliver
Virginia Polytechnic Institute and State University

The need for evaluation is a program reality today. It is mandated by legislation for Federally supported vocational and technical education programs. Perhaps of even greater importance, evaluation is required to provide the inputs needed to give direction to program change and modification.

Because of considerations such as these, we in Virginia have initiated a research project to develop a statewide evaluation system for vocational education. Before discussing the project, I would like to set the stage by presenting some basic principles of evaluation (1). These are applicable to the evaluation of programs at all levels and are as follows:

1. Evaluations of educational programs should be made in terms of the objectives of the programs. This is essential since a program should not be expected to accomplish something for which it was not intended to accomplish. Program success may have been achieved even though one disagrees with the objectives. However, if the objectives are not realistic for the given situation they should be changed.
2. Evaluations should be made not only on the basis of what has been done but also on what should have been done. This requires us to be realistic in setting our objectives. We must relate what we

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* Because of the illness of Dr. Oliver, this paper was presented by Mr. Richard K. Hill, Jr.

plan to do to the total needs to be served. Then, we must establish priorities and attempt to meet those needs which are of the greatest importance.

3. Evaluation teams should include both professional and lay personnel. It seems reasonable that professional personnel should accept the major responsibility for determining the data needed, gathering it, and compiling it into a meaningful form with lay personnel assisting. Lay personnel should, however, play a major role in evaluating programs on the basis of this data.
4. Evaluations should include an assessment of both product and process. Many evaluations of local programs are based upon a mass of data concerning the qualifications of teachers, the number of volumes in the library, the annual budget, the facilities and equipment, etc., and give only passing recognition to the results achieved. If we accept the first principle that an evaluation should be made in terms of the objectives of a program, then we must be concerned with the product since the objectives are stated in these terms.
5. Evaluation should be a continuous process. Programs change and conditions change. Continuous evaluation is necessary to provide the information needed to keep programs up-to-date in view of changing conditions.
6. Evaluations of publicly supported programs should include economic considerations. Massive amounts of funds are now being channeled into public education. If we expect to continue the priority we have for funding, we must not only be concerned with the quality of our product but also with its quality in relation to its cost.

7. Evaluations should be concerned primarily with the key indicators of success or failure. Many evaluations become so detailed that they simply collapse from their own weight. If we are to carry on continuous evaluation, I believe we must identify those factors or indicators which are of the greatest importance and study these in depth.

8. The major purpose of evaluation should be to provide the inputs needed to give direction to program change and modification. Program planning and evaluation must go hand in hand. If this is not the case, effort spent on evaluation, except to meet certain requirements, will come to nought. Also we know that change usually comes about with great difficulty. If the information is available to provide a basis for determining if change is necessary and the direction it should take, the difficulty should be lessened.

Given this background, I would like to direct your attention to an approach to evaluation that is contained in the project "An Evaluation System for Vocational Education in Virginia" (2). Be sure to keep the principles of evaluation in mind during this discussion since they provide a rationale for the system.

The state wide evaluation project was initiated in February, 1971, and includes all five vocational services in Virginia (Agricultural Education, Business Education, Distributive Education, Home Economics Education, and Trade and Industrial Education). The major objective of this research is to develop and implement a system that will provide the information needed in evaluating the effectiveness of vocational and technical education programs, services and activities and in determining

the adjustments needed to meet changing conditions. A system is defined as a set of interrelated parts or components. Stated another way, the major objective is to develop and implement a management information system for vocational education in Virginia. Perhaps it seems incorrect for us to call this an "evaluation system." We do it on the basis of defining evaluation as the process of ascertaining the decisions to be made, selecting related information, and collecting and analyzing that information in order to report summary data useful to decision makers in selecting among alternatives (3).

To accomplish the major objective, we have divided the project into a "macrosubsystem" and a "microsubsystem." Each of these will be discussed in some detail.

Macrosubsystem

This subsystem will provide information on vocational education at the State level. It consists of two components, (1) the reporting component and (2) the planning component. The reporting component, which has been given first priority, will provide the information needed to meet the U. S. Office of Education reporting requirements. This involves information on enrollments in vocational education programs, placement of program completions, number of teachers, status of teacher training and local administrative staff in vocational education, and financial information. Our efforts will be concentrated initially on providing information on enrollments and program completions with the other types of information being added later as the system develops. The planning component will provide information needed in program planning, selecting appropriate policies, and developing procedures to meet the overall objectives of the

State. Obviously, the two components are not mutually exclusive since information for reporting is also used in planning.

When this project was initiated we anticipated making direct use of the System for State Evaluation of Vocational Education developed at the Center for Vocational and Technical Education, The Ohio State University (4). After estimating the time required for card punching if all schools offering vocational programs and all students enrolled are included in this system, it was found that a great deal more man-hours than anticipated would be required. This suggested that alternate approaches to data processing, such as the use of optical scanning, should be explored. This would, of course, require a revision of The Ohio Center System.

In general, we hope to streamline the collection and processing of statewide data. We believe we can reduce the amount of time being spent by our State Staff in tabulating data by hand.

Microsubsystem

This subsystem will provide information on vocational education programs at the local level. It consists of three components, (1) evaluation of instructional programs component, (2) evaluation of process and product component, and (3) evaluation of cost and effectiveness component. The possibility of including components 2 and 3 also as a part of the macrosubsystem will be investigated. We shall briefly examine each of these components.

Evaluation of Instructional Programs Component

The major focus here will be on evaluation of the objectives teachers have for their students. A series of workshops will be held to train teachers in how to state their objectives in behavioral terms i.e., precise and measurable statements which describe what students should be able to do

as a result of the instructional program. From these workshops, a series of teaching units with general and specific objectives will be prepared.

The first of these workshops was held June 14-25, 1971. Twenty-eight vocational teachers participated in the meeting. During the workshop each teacher prepared the following component parts of a unit of instruction: (1) an outline of the content, (2) goals statements, (3) justification for the unit, (4) general and specific objectives, (5) proposed table of specifications, and (6) a test. Each teacher will analyze another unit during the school year. It is anticipated that at least 50 units will be completed by February 1, 1972. Plans are that future workshops will provide advanced training for these 28 teachers and basic training for a number of additional teachers.

After several units have been completed, we feel that teachers will be able to agree upon a common set of objectives for a given option within a program. This will permit construction of tests that can be administered on a pre- and post-test basis and used to determine the success of a program in achieving the objectives.

The use of the teaching units will not be restricted to project participants. Eventually, a system will be developed so that all teachers in a given program can use the materials.

A major service to the project participants is the test construction and scoring facilities of the project. Teachers may order test booklets, answer sheets, and standardized administration directions for any unit which has been constructed. After administering tests, the teachers will return the answer sheets and will receive back both the scored tests and an item analysis. Such information will be useful in revising and improving the tests.

We were interested in the teacher's reaction to the first workshop, so we made a rather detailed evaluation of it. We found that the teachers felt they had a better idea of how to specify the outcomes desired from their teaching. Many of them expressed dissatisfaction with their own tests and found that preparing meaningful tests requires a great deal of time and skill. They expressed a desire to learn more about measurement and all said they would be willing to return next summer for a second workshop.

Evaluation of Product and Process Component

The purpose of this component is to determine the relationship between what the student experiences within the planned instructional program and the occupational skills and abilities he or she possesses as a result of the training. The educational process may be described in terms of variables such as facilities and equipment, size of classes, qualification of the staff, student attitudes, etc. The product may be described in such terms as student achievement and success on the job. We hope to begin developmental work on this component soon, and we plan to implement it in selected schools.

Evaluation of Cost and Effectiveness Component

This component is not independent of the previous one since the cost of a program depends upon the educational process employed. Hopefully, it will provide information showing the alternate costs of achieving certain program objectives. Developmental work will begin soon on this component, and it will also be implemented in selected schools.

As you can see, this is a very comprehensive system for evaluating vocational programs, and it is based upon the general principles of evaluation previously enumerated. As we began to implement the project,

we felt the need for some expert assistance and guidance. We decided to organize a National Advisory Committee with the following individuals as members:

Dr. David Berliner, Far West Laboratory for Educational Research and Development, Berkeley, California

Dr. Leonard S. Cahen, Educational Testing Service, Princeton, New Jersey

Dr. Jimmie Fortune, School of Education, University of Massachusetts, Amherst, Massachusetts

Dr. Jerome Moss, Research Coordinating Unit, University of Minnesota, Minneapolis, Minnesota

Dr. Milton Phillips, College of Education, Memphis State University, Memphis, Tennessee

Dr. Robert Stake, Center for Instructional Research and Curriculum Evaluation, University of Illinois, Urbana, Illinois

We have held one meeting and the committee offered several helpful suggestions and recommendations on developing the system.

With regard to staff, we now have an electronic data processing specialist and a test and measurement specialist working on the project. We hope to employ an administrative specialist in the near future.

In closing, may I say that we are encouraged with the experience thus far in developing and implementing the system. We feel that it will have a major impact upon vocational programs in all services throughout Virginia. We hope to continue the project until June 30, 1975 if funds are available. This project is being funded on a 90% reimbursement basis by the Division of Vocational Education of the State Department of Education. Funds are from Part C (Research Grants to States) of the Vocational Education Act of 1963 as amended in 1968.

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DISCUSSION

John H. Rodgers
Clemson University

Dr. Rodgers, in his opening comments regarding the previous paper, cautioned everyone concerning the changing of philosophy within the USOE and the dangers of establishing networks to collect data which may not be of any value within a short period of time. He also brought out that evaluation is based on communication so lines of communication must be established and maintained before effective evaluation can take place.

During the discussion the question was asked: Are we really evaluating second grade reading instruction, in general a lack of communication skills? This question stimulated much good discussion but for obvious reasons no real answer to this question can be arrived at.

Another item mentioned for the consideration of the research project was that most of the objectives in the project are cognitive. It was suggested the other objectives in the psychomotor and affective domains be included in this project.

THIRD SESSION

Chairman: Harold F. Landrith, Dean
College of Education
Clemson University

Secretary: Robert E. Hancock
Division of Vocational Education
Florida State Department of Education

ACCELERATING EDUCATIONAL CHANGE

James F. Shill
Mississippi State University

Introduction

Perhaps most of us will agree that today change is the "in thing" in Vocational Education circles. Change has always been with us and will continue to be, if we are to progress. However, some of our colleagues in the vocational education profession may give some of the rest of us the impression that nothing changed in the profession until they came along. This same group has intentionally or unintentionally visualized themselves as the only change agents on the scene and are attempting to become legends in their own time. This has resulted in a change for "change sake" philosophy in far too many instances. I fear that in many of these cases, these so-called "change agents" are in reality "process-mixing agents" which blend, stir, and beat the vocational education process without brining about any significant change in the performance of the end product--the student.

One has only to glance at professional journals to be given the impression that massive changes are sweeping the vocational education world. However, upon closer examination of these same journals, there is a strikingly similar emphasis in the articles upon new tools or gadgets, or methods of grouping students, rather than the changes brought about in student learning or performance. Are we, in far too many cases, using the term "change" when we really mean "innovation"? I am afraid that we are. Granted, many innovations will result in change, but many others will not.

True change is an interesting commodity which affects different persons in our profession in different ways. Some in our ranks may choose to try to ignore any given change. Some others may resist it, either forcefully or passively. Still others may seemingly accept it with false enthusiasm and fail to follow through with the necessary action to implement the change. Others may temporarily accept a change and eventually revert back to the "old ways." Finally, we have those among us who accept a given change and utilize it to its maximum. I am sure that many of us would agree with R. F. McPhee[1] when he stated that over the years he has observed "our individual enthusiasm for a specific change is usually inversely proportional to how much we, ourselves, must change. We desire it greatly in and for others. We praise changes for others, but seldom value changes for ourselves." If we were to take an introspective look at agricultural education, we might find some teachers trainers urging (perhaps for good reasons) local vocational agriculture programs to make substantial changes in their operations, while seldom pressing with the same zeal for changes in their own institutions and/or departments. Or perhaps we may find some State Departments of Vocational Education which have been reorganized to fit the U.S.O.E. pattern, urging (perhaps for good reasons) teacher training institutions to change because they may not fit their new organizational pattern.

It is interesting to note that in many cases when a change is "forced" upon a person or organization that is not completely sold on the specific change, the person or organization may strongly press for the same change in other persons or organizations. Apparently, in some cases, the motive becomes "if it's so good for us, it's good for everybody."

The real motive for the change can sometimes become a front-line casuality in the encounter.

The public school system has continually come under attack in recent years for its apparent inability to rapidly adapt to the so-called "changing times." A Congressional Sub-committee added fuel to the fire by reporting that an innovation in medicine which led to change is universally adopted in approximately two years, whereas, an innovation in education which led to change takes some thirty years before it is widespread. Carlson[2] suggested three possible elements contributing to the slow rate of change in school systems. First, the absence of a functioning "change agent." Second, we possess a weak knowledge base upon which to build change, and finally, what he refers to as the "domestication" of the local school system. Whether we agree with his analysis or not, I think that we are all in agreement that change does indeed come slowly in education.

Basic Strategies for Accelerating Change

Before we involve ourselves in a discussion on some basic strategies to utilize in accelerating change, it would be well for us to remember that the varied "change agents" (local administrators, practitioners, state level administrators, teacher trainers, and researchers) do not possess the same kinds of change theory or knowledge. Hence, their basic strategies or procedures may be somewhat different in nature. In the discussion of basic strategies we will limit ourselves to the deliberate attempts to bring about change, while realizing that some changes are brought about in other ways.

One cannot help being awed at the extent to which social scientists have gone to in developing classification systems for change strategies

that tend to contradict each other. Miles[3] and Walton[4] perhaps are the closest in agreement when they generally classify change strategies into: (1) power and/or solution-oriented approaches; (2) relationship and/or attitude changes approaches; and (3) problem-solving approaches. However, Chin's[5] classification is of a slightly different approach. He classifies strategies in three ways, namely: (1) according to frequency of use, size, and kind of effects intended to be achieved; (2) according to target populations and goals; and (3) according to some conceptual categorization of the strategy or approach. For our topic at this time, we will concern ourselves with Chin's[6] conceptual categorization.

1. Power-Coercive Strategies. Brings about changes in the way people act through limiting their alternatives; presenting consequences for their acts; and/or controlling their actions. The approaches utilized in power operations are:

   a. Situational Alterations -- Power is used to alter the situation in which persons act through control over their functions. If we are talking about individuals, we may point to job descriptions which are altered to force the person and/or persons to adopt the change as part of his functions. Inducements, threats of punishment, and other aspects of the environment may be utilized in a manner which coerces an individual or an organization into change. Perhaps we should point to the Vocational Amendments of 1968 as an example of situational alteration. The "earmarking" of funds (some may consider it inducements, while others may view it as punishment) certainly coerced changes.

b. Command Structure Operations -- organizations have authority or command structures for getting changes implemented. A neophyte may believe that the changes come through the standard organizational chart of the organization. However, reference to studies on the subject points out that often an "informal" change structure exists in organizations which is quite different from the organizational chart. Most of us have observed this "informal" change structure in operation in organizations that we belonged to.

c. Power Redistribution -- This approach requires the transfer of some degree of power from the "status" change agent to the person actually implementing the change. In far too many cases, this is not a painless or bloodless operation.

d. Conflicts over Allocation of Resources -- This approach utilizes forms of action to reach the desired change. Bargaining, threatening, negotiating, maneuvering, etc., are utilized in reaching desired changes in resource allocation. At this point, we have only to think of the teacher strikes to visualize its operation in the educational system.

2. Normative-Reeducative Strategies. These strategies are basically concerned with the fundamental process of attitude changing. Some of the more common elements in this cluster of methods trace back to Dewey and Freud. Chin[8] reports these as being: (1) the manner in which one sees himself and his problem; (2) the problem of change is considered the nature of the attitudes, values, skills, and relationships of the people in the organization rather than a lack of technical information; (3) change can be brought about more rapidly if it is based upon a person's

own experiences; and (4) re-examinations of motivation, morale, and productivity of persons involved in changes are necessary. The methods used are:

a. Problem-solving Approaches -- Self-study, increasing data flow within the organization of the organization to its external environment, and feedback are all utilized in implementation of change within the organization.

b. Attitudes and Feelings Approaches -- Emphasis is placed upon building trust between persons within the organization, achieving equal status for these persons, developing willingness and feeling for change, and then implementing the desired change.

3. Empirical-Rational Strategies. These strategies base the desired change on usefullness and reason which can be demonstrated to the potential change, so that he will adopt it. Some approaches utilized are:

a. Applied Research Approach -- The time-honored approach to change as may be viewed in vocational agriculture curriculum materials development. Instructional materials prepared on the findings of "satisfactory research studies."

b. Linking Systems Approach -- Perhaps better known as "research and development." A linking of research to innovation-diffusion to bring about change in the educational system.

c. Expert Consultants Approach -- Specialists in technical or special skill areas are brought in to accelerate change within their specialties.

d. Prophesying a Future Approach -- Inventing and designing for the future by taking actions which make the prophecies look convincing and rational to the changes.

Each one of us has probably witnessed all or at least many of these basic strategies in operation in vocational education during the change process. The strategy and approaches one utilizes in implementing a specific change can be determined by many items such as the change agent personality, the target to which the change is directed, the amount of time available for implementation of change, as well as numerous other conditions or elements. Perhaps to be most effective, a hybridization of strategies and approaches are necessary for implementing change. No single strategy or approach should be adopted as the "only" way of implementing change for an individual or an organization. Strategies and approaches for change should be flexible in order to adopt desired specific changes as rapidly as possible.

An Approach to Accelerating Educational Change in a Local School System

I would like to "change" gears at this point and discuss an approach that we utilized in accelerating the implementation of research and curriculum innovations into a school system in our state. This was, in fact, a project designed to work the implementation "bugs" out of the design before implementation on a wide scale throughout the state. The project itself in reality redesigned the entire school system upon the "career-centered" concept. Before going into the approach utilized, I would like to tell you something about the system and what we were trying to accomplish.

The school system selected for the project is a county unit system in the southeastern part of the state. The county is classified as being depressed and has a high rate of unemployment. The district has a population of approximately 61,000, of whom 25 percent are described as being

disadvantaged. The school system has an approximate enrollment of 8,000 students, with a professional staff of some 380 teachers and administrators.

The procedure designed to implement the career-centered concept spans all levels of the educational ladder. It places heavy emphasis upon re-orientation of the traditional school concept about occupational education. During the process students are exposed to occupational education as they enter the elementary school and continue learning about, and preparing for the world of work as they progress through elementary, junior high, secondary, and post-secondary schools in the area.

The procedure views the levels of occupational education as being a pyramid, with students making decisions about careers and needed training based upon broad exploratory experience and counseling obtained through the program. As students narrow their choices about occupational selections, individual occupational experiences become more sophisticated and intensified.

The process begins with the elementary schools providing students with sufficient occupational information and counseling to meet the needs of all children according to their interests and abilities. To accomplish this basic goal, local exemplary program personnel are providing basic services to the elementary faculties. These services include obtaining occupational information, providing counseling, and providing resource persons to be utilized by the elementary faculties. In addition, workshops, seminars, and field trips are held to assist the elementary faculties to incorporate career development into the regular instructional program.

In the junior high school, students expand and intensify their exploratory experiences in the world of work through a specially designed course,

Occupational Orientation. In Occupational Orientation, the student's self-awareness of the world of work is increased by capitalizing upon the introduction to occupational information received at the elementary level. The course is designed to provide exploratory experiences in a broad range of occupational categories and levels, with opportunities for students to make comprehensive educational and occupational decisions rather than being forced into limited choices. In the course, the students are brought to grips with self and society, self and occupation, and self and personality development. Throughout the course the students see career development in logical sequenced steps traversing the entire occupational choice process.

The career-centered curriculum at the senior high level is a continuation of exploratory experiences received by students in the elementary and junior high school levels, with additional emphasis being placed on occupational preparation activities. Students receive assistance in planning for and attaining vocational goals and preferences, either in the form of additional vocational training or work experience. These experiences are obtained by the students through the vocational programs of agriculture, auto mechanics, building trades, cooperative education, consumer home economics, general metal trades, industrial drafting, industrial electricity, or office occupations, which are offered either in the three high school attendance centers or the area vocational complex.

A concerted remedial program is operated for students who are identified as potential dropouts in conjunction with the exemplary program. This remedial program is equipping potential dropouts with competence

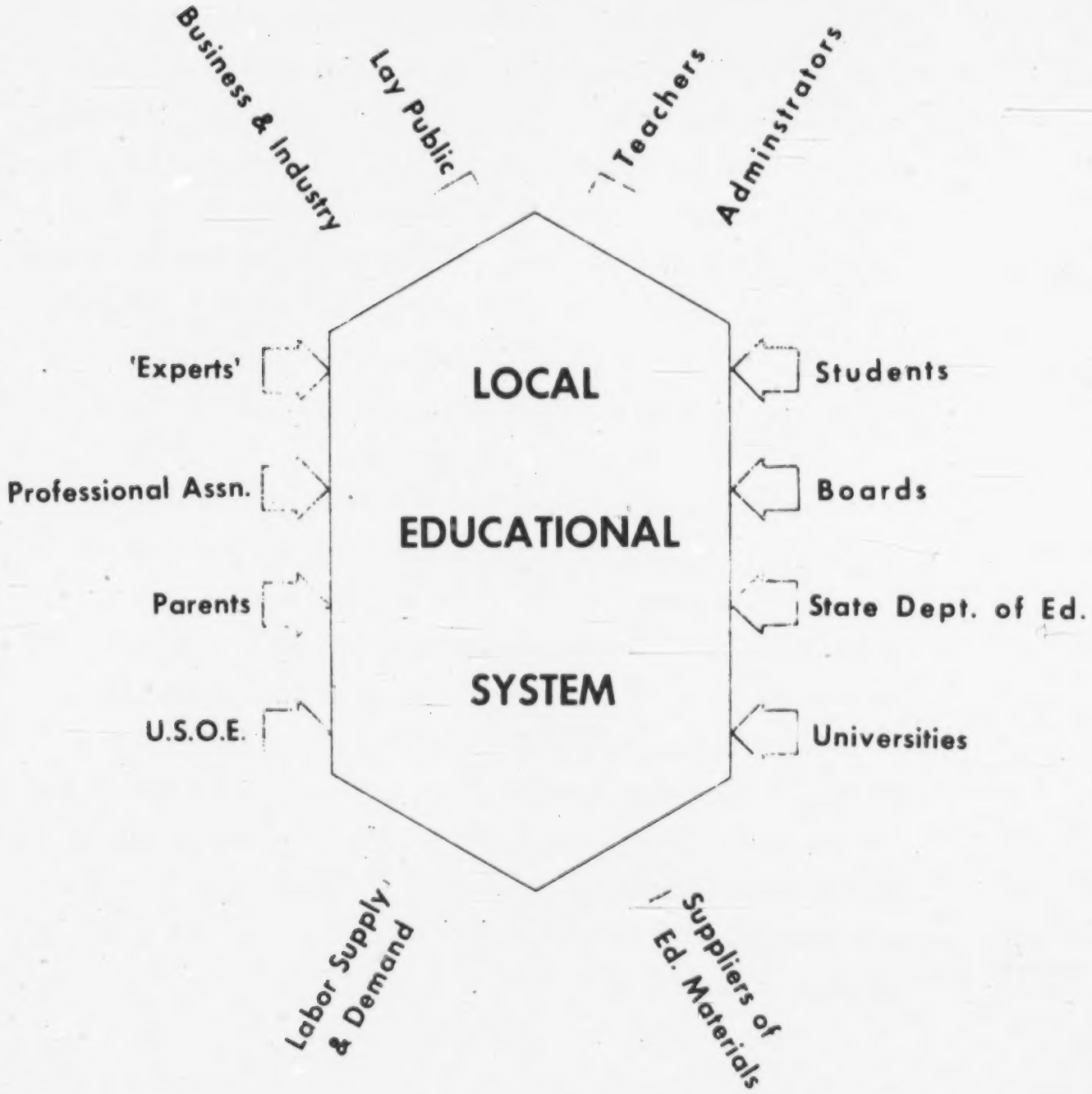
and skills necessary for pursuing further vocational training in keeping with their occupational objectives.

The career-centered concept is enhanced by the availability of extensive vocational-technical training available through an area post-secondary school (Jones County Junior College). The vocational programs at the junior college are open-ended and accept students at any level who can make progress in the occupational training programs. Offerings available in the post-secondary facilities include: forestry, horticulture, livestock technology, distribution and marketing, supermarket training, practical nursing, data processing, secretarial science, building construction technology, drafting and design, electronics technology, mechanical technology, air conditioning and refrigeration, auto mechanics, horology, machine shop, radio and television repair, and welding.

Mustering Forces for Change

As we began to design an approach to implement this somewhat drastic change in the school system, we began to visualize the forces that are in play to implement change in any school system (see Figure 1). It was discerned that if as many of these forces as possible could be channeled into one thrusting force, it could result in change at an accelerated rate. So, our first task became the harnessing of as many of these forces as possible for the effort. I would be less than candid if I suggested that this was an easy or completely successful effort. However, as many as possible were included in the planning and implementation of the project. This harnessing of forces will determine the acceleration rate as well as the amount of change.

FORCES FOR CHANGE UPON A LOCAL EDUCATIONAL SYSTEM



Planning for Change

I would suggest from past experience that careful attention should be paid to the timing of forecast changes and the rate at which they materialize. As planning was implemented for the project, special attention was paid to: (1) anticipating the future needs and pressures; (2) locating and defining change requirements; (3) evaluating alternatives to achievement of objectives; (4) evaluating alternatives with respect to achievement and cost; (5) determination of priorities; (6) allocation of resources; and (7) evaluation and review. Approximately six months of prior planning went into this specific change. May I add that it was not enough to eliminate all of the problems. As educational "change agents" we will do well to follow the lead of the Defense Department and have a plan of action ready for all possible alternatives even though we may never use them. Additional time spent in planning can save much in the way of time, energy, and costs.

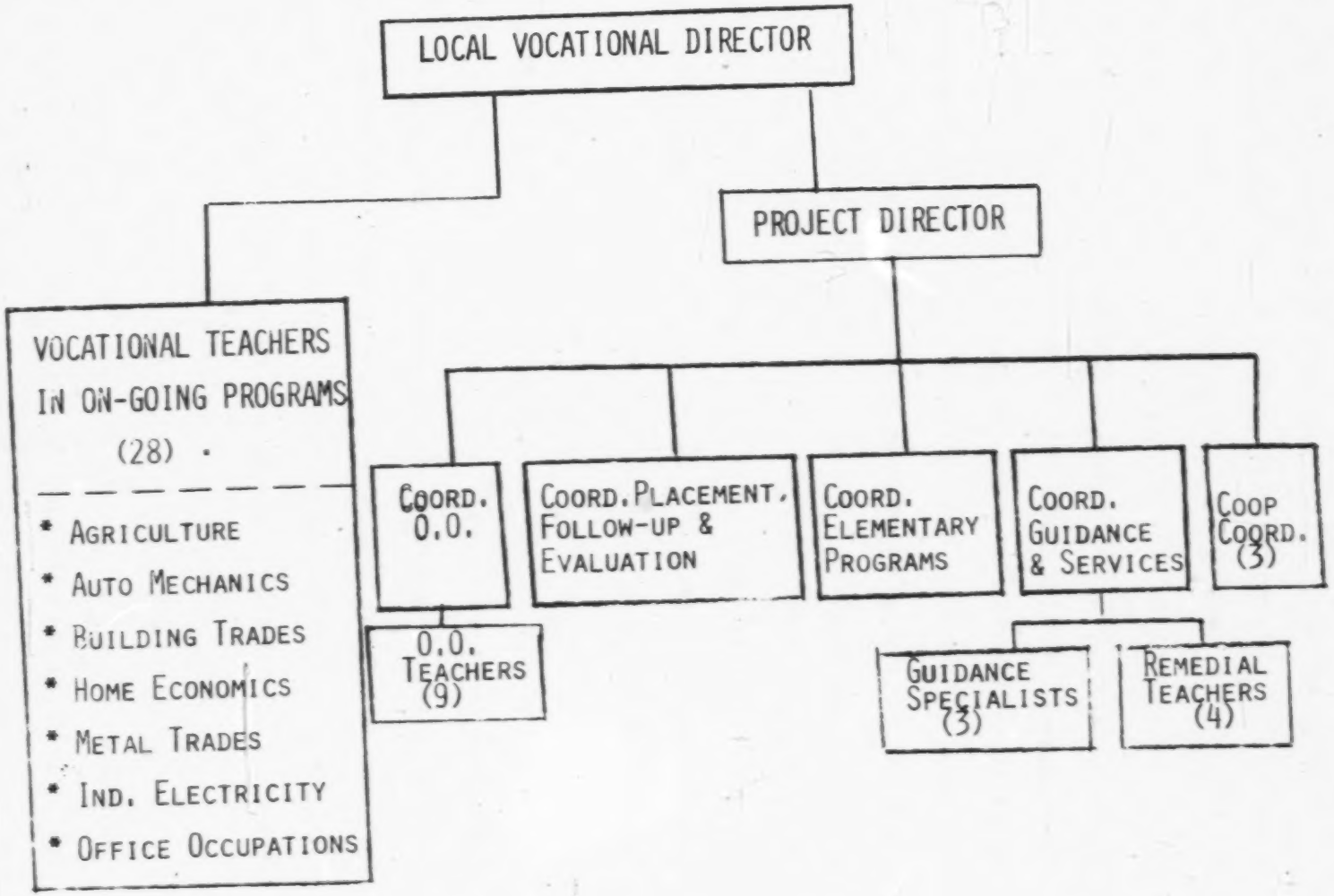
Staffing for Change

Depending upon the type of change to be implemented, a staffing pattern will most probably emerge. In some cases it may require a shifting of teachers and/or administrators into a new type of organizational structure; others may require a change of personnel within the structure which may be accomplished as normal turnover takes place. In this project, a new structure was developed as depicted in Figure 2.

Working with Incumbent Staff

One of the necessities of any program of change is to obtain the involvement of those who will be affected. People affected by the change must be involved and committed. This is no small task, and to accomplish it, the change must be planned far enough in advance so those affected

ORGANIZATIONAL STRUCTURE



will have sufficient lead time to understand and accept the need for it. In this project this was our weak point. Due to lateness of funding, sufficient lead time could not be allowed and this caused some problems during the beginning of the year.

It is imperative that a favorable attitude be created among the entire staff. To do this, the total administrative staff must present a positive, enthusiastic attitude toward the change. This attitude must be expressed in as many tangible, as well as intangible, ways as possible. Newsletters from the administration, rather than the project staff, concerning the activities and progress of the project are extremely helpful in this manner. In addition, project reports can be made at faculty meetings, etc., by administrators rather than staff personnel. The interaction among staff members--both within and among schools of the system, is of the utmost importance in building attitudes. This interaction must be conducted in a scheduled and orderly fashion which encourages active involvement rather than superficial participation. In my observations, I have noted that superficial participation will retard change more than no participation at all.

In-Service Education

A cooperative effort of in-service education was carried out to prevent a "piece-meal" approach. The program planned for the duration of the school year made available on an efficient and coordinated basis the combined resources of colleges and universities, state department of education, consultants, and public school personnel for in-service activities. In-service activities were conducted on a bi-weekly basis throughout the school year. This approach allowed all staff members to work on minor problems as they arose and prevented them from becoming major problems.

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THE IDENTIFICATION OF TEACHER OPINION LEADERS: AN ELEMENT IN A CHANGE STRATEGY FOR AGRICULTURAL EDUCATION

Cecil H. Johnson, Jr.
S. C. State Department of Education

This study was based on data received from 272 teachers of vocational agriculture in South Carolina, making up 97.79 percent of all teachers in the state. A descriptive survey utilizing group interview techniques was the procedure used in gathering data.

Leadership among teachers was measured by use of a sociometric technique of identifying opinion leaders. Individual teachers were asked to identify teachers of vocational agriculture from whom they would seek advice and information on eleven areas of the vocational agriculture program. The eleven areas were plant science, animal science, FFA, supervised work experience, agricultural mechanics, farm management, specialized programs in ornamental horticulture, specialized programs in agricultural supply, young farmer programs, adult farmer programs, and administering a vocational agriculture department. Sociometric scores were computed by summing the number of times an individual was named by his peers for each area. Those teachers named four or more times for an area were classified as opinion leaders.

The self-designating and key informant techniques of identifying opinion leaders were also utilized and correlated with the sociometric technique to determine whether these methods were effective in identifying opinion leaders. The self-designating technique consisted of administering to teachers a six item scale. It was possible for teachers to score themselves from 0-6 on the scale. Those teachers scoring 4-6 points were categorized as considering themselves to be opinion leaders.

The key informant technique consisted of asking individuals who were familiar with all teachers to rate each on the degree of opinion leadership exhibited in a randomly selected area of the vocational agriculture program. District supervisors of vocational agriculture programs were utilized for this task.

Social participation, innovativeness and job satisfaction were measured with scales or indices especially suited to each characteristic. The Chapin Social Participation Scale was utilized to measure social participation. Innovativeness was measured by an adoption scale formulated by the author specifically for teachers of vocational agriculture in South Carolina. The mathematical formula for the innovativeness scale was:

$$IS = \frac{tla + tlp}{Na} \times \frac{41}{Ye}$$

Where:

tla : time lag expressed in years for all practices adopted by the individual teacher.

tlp : time lag penalty in years for remaining practices adopted which could have been adopted.

Na : number of practices actually adopted.

41 : maximum length of experience of any teacher investigated.

Ye : years of experience possessed by the individual teacher.

Job satisfaction was measured with the use of the Brayfield and Rothe Index of Job Satisfaction.

Characteristics such as age, experience, educational attainment, professional educational offices held were reported by the respondents.

The instrument used to collect data was administered in group-interview situations at regularly scheduled district meetings of teachers of vocational

agriculture in South Carolina in March, 1968. Follow-up information was gathered where necessary in March and April, 1968.

Information provided by the respondents was checked for accuracy, tabulated and analyzed statistically. Tests of significance involving the standard Z score, Chi-square and Spearman correlations were used where appropriate.

Purpose of the Study

The central purpose of this study was to gain some insight and understanding of the opinion leadership phenomenon as an element of a change strategy for agricultural education.

Specific Objectives

The specific objectives of the study were:

1. To develop a means of identifying opinion leaders among teachers of vocational agriculture.

2. To determine selected personal and social characteristics of opinion leaders among teachers of vocational agriculture.

Hypotheses

A theoretical base of the study was established and sixteen hypotheses to be tested were derived from this theoretical base. The hypotheses were:

Hypothesis 1. There is a significant positive correlation between the sociometric and self-designating techniques of identifying opinion leaders.

Hypothesis 2. There is a significant positive correlation between the sociometric and key informant techniques of identifying opinion leaders.

Hypothesis 3. Teachers of vocational agriculture who are opinion leaders are significantly older than teachers of vocational agriculture who are not opinion leaders.

Hypothesis 4. Teachers of vocational agriculture who are opinion leaders have significantly more years of service in vocational agriculture than do teachers of vocational agriculture who are not opinion leaders.

Hypothesis 5. Teachers of vocational agriculture who are opinion leaders have held significantly more vocational agriculture teaching positions than teachers of vocational agriculture who are not opinion leaders.

Hypothesis 6. Teachers of vocational agriculture who are opinion leaders have attained a significantly higher educational level than teachers of vocational agriculture who are not opinion leaders.

Hypothesis 7. Teachers of vocational agriculture who are opinion leaders have significantly larger personal investments in professional improvement than teachers of vocational agriculture who are not opinion leaders.

Hypothesis 8. Teachers of vocational agriculture who are opinion leaders have a significantly higher income from teaching than do teachers of vocational agriculture who are not opinion leaders.

Hypothesis 9. Teachers of vocational agriculture who are opinion leaders held a significantly greater number of offices in educational organizations than do teachers of vocational agriculture who are not opinion leaders.

Hypothesis 10. Teachers of vocational agriculture who are opinion leaders are significantly more cosmopolite than teachers of vocational agriculture who are not opinion leaders.

Hypothesis 11. Teachers of vocational agriculture who are opinion leaders use significantly more impersonal, non-local sources of

information from outside the field of agricultural education which are more costly in time and money than do teachers of vocational agriculture who are not opinion leaders.

Hypothesis 12. Teachers of vocational agriculture who are opinion leaders read a significantly greater number of professional education and technical agriculture publications than do teachers of vocational agriculture who are not opinion leaders.

Hypothesis 13. Teachers of vocational agriculture who are opinion leaders have a significantly greater degree of social participation than teachers of vocational agriculture who are not opinion leaders.

Hypothesis 14. Teachers of vocational agriculture who are opinion leaders are significantly more satisfied with their jobs than are teachers of vocational agriculture who are not opinion leaders.

Hypothesis 15. Teachers of vocational agriculture who are opinion leaders are significantly more innovative than teachers of vocational agriculture who are not opinion leaders.

Hypothesis 16. Teachers of vocational agriculture who are opinion leaders conform significantly more closely to social system norms on innovativeness than do teachers of vocational agriculture who are not opinion leaders.

Major Findings

The following are major findings of the study as they applied to the teachers involved. General findings are presented first and specific analysis pertaining to the hypotheses are presented separately.

General Findings

1. Opinion leaders among vocational agriculture teachers could be isolated from their peers by utilizing the sociometric technique with the

criterion that to be classified as an opinion leader an individual must have been mentioned at least four times by his peers as a source of advice and information for a specific area of the vocational agriculture program.

2. Personal influence was dispersed in some areas of the vocational agriculture program as a large number of teachers were named as a source of advice and information. However, in other areas of the vocational agriculture program, personal influence was concentrated in a relatively small number of teachers.

3. Opinion leaders were identified for each of the eleven areas of the vocational agriculture program investigated. The number of opinion leaders identified ranged from a maximum of sixteen for the FFA area to a minimum of three for the area of specialized programs in agricultural supply.

4. A high degree of interrelationship was observed among the responses to the several questions that made up the total sociometric score. Twenty-one of forty-one percent of the opinion leaders were influential in more than one area of the vocational agriculture program.

5. The sociometric data indicates that opinion leaders frequently seek out other opinion leaders as their source of advice and information. Seventy-two percent of the opinion leaders selected other opinion leaders as their source of advice and information.

6. Lending support to the importance of personal influence exerted by opinion leaders among teachers of vocational agriculture was the finding that all vocational agriculture teachers indicated that other teachers of vocational agriculture and district supervisors were the sources from which they typically sought advice and information.

Specific Findings Related to the Hypotheses

1. There was no significant positive correlation between the sociometric and self-designating techniques of identifying opinion leaders.

2. There was a significant positive correlation between the sociometric and key informant techniques of identifying opinion leaders in five of the six supervisory districts. In the remaining district, the correlation was positive but was not significant at the .05 level.

3. Opinion leaders among teachers of vocational agriculture were significantly older than their peers.

4. Teachers of vocational agriculture who were opinion leaders had taught vocational agriculture for a significantly longer period of years than teachers who were not opinion leaders.

5. There was no significant difference in the number of different vocational agriculture teaching positions held by teachers who were not opinion leaders.

6. Opinion leaders among teachers of vocational agriculture had attained a significantly higher educational level than teachers who were not opinion leaders.

7. There was no significant difference in the amount of personal money spent for professional improvement by opinion leaders and their peers among teachers of vocational agriculture.

8. Opinion leaders had a significantly greater number of educational offices than did their fellow teachers of vocational agriculture.

9. Opinion leaders had a significantly greater income from teaching than their peers.

10. Cosmopoliteness was not a differentiating characteristic between opinion leaders and their peers among teachers of vocational agriculture.

11. There was no significant difference in the sources of information used by teachers of vocational agriculture who were opinion leaders and the sources of information used by their peers.

12. Opinion leaders and their peers did not read a significantly different number of professional education and technical agriculture publications.

13. Opinion leaders among teachers of vocational agriculture exhibited a significantly greater degree of social participation than did their peers.

14. There was no significant difference in the job satisfaction of opinion leaders and their peers among teachers of vocational agriculture.

15. Opinion leaders were significantly more innovative than their peers among teachers of vocational agriculture.

16. Teachers of vocational agriculture who are opinion leaders conformed more closely to social system norms on innovativeness than did their peers but not significantly closer.

General Conclusions and Implications

The following conclusions were drawn from the general findings of this study.

1. Opinion leadership among teachers of vocational agriculture is fairly widespread. However, when subjected to the more stringent definition of the study, a hierarchy of opinion leaders emerges with pervasive opinion leadership concentrated in a few individuals.

Implication -- In attempting wholesale efforts to create change and increase the adoption of approved education innovations, the state supervisory staff should identify those individuals in whom opinion leadership is especially concentrated. By identifying these opinion leaders, and

focusing their efforts on accelerating change in the programs of these individuals, supervisors should reap benefits from the internal dynamics of a social group whereby individuals who have adopted an innovation or have made a change influence others to do so. Opinion leaders, with greater personal influence than others, should accelerate the interaction effect. In addition, opinion leaders who are influential in more than one area of the vocational agriculture program tend to multiply their personal influence, compounding their interaction effect.

2. Though opinion leadership is concentrated in a few individuals, the overall differences in personal and social characteristics of opinion leaders and their peers is not significant.

Implication -- State supervisory staff members cannot rely on a series of social and personal characteristics as the criteria for identifying opinion leaders. Therefore, an alternative technique or techniques for identifying these individuals must be utilized.

3. District supervisors are considered by teachers of vocational agriculture to be good sources of advice and information and therefore should be considered to exert relatively great influence on the actions of teachers of vocational agriculture.

Implication -- Only those individuals who are change oriented should be selected for supervisory positions. Slow-to-change individuals in district supervisory positions would tend to greatly reduce the rate of educational change due to the influence they exert on teachers of vocational agriculture.

4. Teacher educators were not regarded as a primary source of advice and information for teachers of vocational agriculture.

Implication -- No attempt was made to determine why teacher educators were not named by any teacher as a source of advice and information. However, the implication exists that teacher educators should attempt to determine why this finding occurred. Perhaps it is because of the relatively infrequent contact between teacher educators and teachers as compared to the frequency of contact between teachers and district supervisors or school administrators. In any event, further research is needed to determine the reason for this occurrence.

Conclusions and Implications Related to the Hypotheses

On the basis of the finding revealed during the conduct of the study, eight of the hypotheses could be rejected and alternative hypotheses accepted. The alternative hypotheses which were accepted and their attendant implications were:

1. There is a significant positive correlation between the sociometric and key informant techniques of identifying opinion leaders.

Implication -- As the sociometric technique of identifying opinion leaders is somewhat more involved and therefore more difficult to administer than the key informant technique of identifying opinion leaders, the state supervisory staff should utilize the key informant method to identify the opinion leaders in the population of teachers of vocational agriculture. Since the key informants utilized in this study were the district supervisors of agricultural education, this implies that the state supervisory staff is aware of the identity of opinion leaders in the state.

2. Teachers of vocational agriculture who are opinion leaders are significantly older than teachers of vocational agriculture who are not opinion leaders.

Implication -- Opinion leadership encompasses a specific age span. Thus, the supervisory efforts designed to bring about educational change should be concentrated on this specific age group. However, the implication exists that the state supervisory staff should also attempt to identify those younger teachers who are the emerging opinion leaders in the field. Identification and utilization of these emerging opinion leaders would insure continuity in the educational change master plan.

3. Teachers of vocational agriculture who are opinion leaders have significantly more years of service in vocational agriculture than teachers of vocational agriculture who are not opinion leaders.

Implication -- Opinion leaders are older and also have more years of experience in teaching vocational agriculture, implying that maturity and experience are prerequisites of opinion leadership. Therefore, in seeking to identify opinion leaders, supervisory staff members should direct their initial efforts toward older, more experienced teachers.

4. Teachers of vocational agriculture who are opinion leaders have a significantly higher income from teaching than do teachers of vocational agriculture who are not opinion leaders.

Implication -- On the surface, this conclusion implies that salary level would be an indicator of opinion leadership. However, in the state in which the study was conducted, salaries of teachers are based on a state salary scale, except for local supplements. This pay scale rewards years of service and advanced degrees. As conclusions three and five indicate, opinion leaders have taught vocational agriculture for longer periods than their peers and have attained a higher educational level than their peers. Thus, salary alone would not be an indicator of opinion leadership. However, salary, years of service and educational attainment

would provide state supervisory staffs with an indicator of the opinion leadership possessed by individual teachers.

5. Teachers of vocational agriculture who are opinion leaders have attained a significantly higher educational level than teachers of vocational agriculture who are not opinion leaders.

Implication -- This conclusion implies that the use of credit courses to aid in creating educational change in the programs of opinion leaders would not result in accelerating the rate of educational change as opinion leaders generally had completed work toward the master's degree. Special invitational workshops, institutes and conferences designed to emphasize specific educational changes or innovations should result in greater acceleration of change. However, since opinion leaders tend to strive for a higher educational attainment than do other vocational agriculture teachers, graduate courses designed to promote educational change would be effective with the "emerging" opinion leader. Therefore, the implication for designing graduate courses to promote educational change becomes relevant.

6. Teachers of vocational agriculture who are opinion leaders hold a significantly greater number of educational offices than do teachers of vocational agriculture who are not opinion leaders.

Implication -- The number of educational offices held by a teacher of vocational agriculture would be a good indicator of the degree of opinion leadership held by that individual. It also implies that vocational agriculture teachers recognize opinion leaders and elect them to offices in agricultural education. This was especially true of offices above the local level.

7. Teachers of vocational agriculture who are opinion leaders have a significantly greater degree of social participation than teachers of vocational agriculture who are not opinion leaders.

Implication -- No attempt was made to determine whether an individual was an opinion leader because of greater social participation or whether greater social participation resulted in increased opinion leadership. However, a correlation between the two did exist, implying that perhaps opinion leaders work at becoming opinion leaders by becoming involved in more activities and organizations. This "joiner" attitude on the part of the opinion leader also indicates concern for service to the organization as opinion leaders were members of a greater number of professional education and vocational education organizations than were teachers who were not opinion leaders.

8. Teachers of vocational agriculture who are opinion leaders are significantly more innovative than teachers of vocational agriculture who are not opinion leaders.

Implication -- This indicates that opinion leaders are more receptive to educational change than their fellow teachers. This factor gives added emphasis to the implication that state supervisory staff members interested in encouraging educational change should concentrate their efforts on the opinion leader to take advantage of their willingness to adopt education innovations and the influence which these teachers exert over their peers. However, since most opinion leaders were categorized as early adopters and not innovators, this implies that they are not the most willing of the group of teachers to change, and indicates that an effort by the state supervisory staff will be needed to accelerate change.

An attendant implication is that innovators are also an important group of teachers. As past research has indicated, innovators may not be a respected leader of change but may set the stage for change by demonstrating new ideas or innovations to opinion leaders. Thus, the state supervisory staff cannot afford to concentrate their change efforts on opinion leaders alone. Emphasis on innovativeness, encouragement and freedom to try new ideas must also be provided the innovator group of teachers.

An additional attendant implication is that since opinion leaders are found in all of the innovativeness categories including the laggard categories, state supervisory staff members cannot afford the luxury of concentrating their efforts on the more innovative opinion leaders. All opinion leaders should be included in any program of planned change as teachers of vocational agriculture tend to seek out members of their own or only a slightly more innovative peer group member for advice and information. Neglecting opinion leaders who are members of the late majority and laggard innovativeness categories would also result in neglect of other teachers who are members of these innovativeness categories.

Conclusions and Implications Related to the Hypotheses

On the basis of the findings of the study, the investigator concluded that the following eight hypotheses could not be rejected since the findings were not significantly different at the .05 level. These hypotheses and their attendant implications are as follows:

1. There is no significant correlation between the sociometric and self-designating techniques of identifying opinion leaders.

Implication -- There was no significant correlation between the two techniques of identifying opinion leaders. State supervisory staff members should not use the self-designating technique of identifying opinion leaders unless further study indicates that the self-designating technique of identifying opinion leaders among teachers of vocational agriculture is a valid technique.

2. There is no significant difference in the number of different vocational agriculture teaching positions held by teachers of vocational agriculture who are opinion leaders and teachers of vocational agriculture who are not opinion leaders.

Implication -- Opinion leaders are like other teachers of vocational agriculture in relation to the number of moves made after beginning to teach vocational agriculture. However, additional findings indicated that opinion leaders had taught for a longer period of time in the position in which they were employed at the time of the study than had other teachers. This finding implies that opinion leaders change teaching positions until a satisfactory position is located and then remain in that position for long periods of time. This implies that tenure in a position is a requirement for possession of opinion leadership. For the practical purpose of identifying opinion leaders, number of moves would not be an indicator of opinion leadership.

3. There is no significant difference in the amount of personal money invested in professional improvement by teachers of vocational agriculture who are opinion leaders and the amount of personal money invested in professional improvement by teachers of vocational agriculture who are not opinion leaders.

Implication -- Although opinion leaders had attained a higher educational level than other teachers, this finding implies that the educational attainment was achieved early in the teacher's career as the findings apply only to the two years preceding the date upon which the data for the study was collected.

The implication for state supervisory staffs is that for advanced course work to be of value in promoting educational change it must be oriented to "emerging" opinion leaders who are currently engaged in advanced course work. This finding further substantiates the implication that special invitational institutes, workshops and conferences are probably the most effective means of reaching incumbent opinion leaders.

4. There is no significant difference in the cosmopoliteness of teachers of vocational agriculture who are opinion leaders and the cosmopoliteness of teachers of vocational agriculture who are not opinion leaders.

Implication -- Vocational agriculture teachers are cosmopolite in nature and make an effort to broaden their perspective of vocational agriculture programs and education in general by visiting other programs of instruction, other programs of vocational agriculture and by attending professional educational meetings. State supervisory staffs should, therefore, continue to create a climate conducive to additional activities of this nature. Educational change could conceivably be accelerated by encouraging teachers to visit specific programs which are innovative in specialized areas of the program. Possible plans of action could include holding district conferences and workshops in innovative departments of vocational agriculture.

5. There is no significant difference in the sources of information used by teachers of vocational agriculture who are not opinion leaders.

Implication -- There are no specific sources of information which the opinion leader uses which distinguish the individual as an opinion leader. This again implies that opinion leaders are much like the person upon whom they exert personal influence.

6. There is no significant difference in the number of professional education and technical agriculture publications read by teachers of vocational agriculture who are opinion leaders and the number of professional education and technical agriculture publications read by teachers of vocational agriculture who are not opinion leaders.

Implication -- There were no apparent differences in the professional education and technical agriculture publications read by opinion leaders and their peers, implying that there are no specific publications through which state supervisory staff members can reach opinion leaders with new ideas and innovations. The luxury of utilizing a small number of publications to reach opinion leaders cannot be justified. However, making use of all publications of a professional education and technical agriculture nature and especially The American Vocational Journal, The Agricultural Education Magazine, and The NEA Journal would provide a source of new ideas for all teachers of vocational agriculture, including opinion leaders. This implication demands greater use of the professional education and technical agriculture publications to inform teachers of the development of innovations applicable to teaching vocational agriculture. An attendant implication is that state supervisory staff personnel should increase the number of articles of an innovative nature written for publication in professional education and technical agriculture publications.

7. There is no significant difference in the job satisfaction of teachers of vocational agriculture who are opinion leaders and the job

satisfaction of teachers of vocational agriculture who are not opinion leaders.

Implication -- Opinion leaders are a great deal like other teachers of vocational agriculture in their personal and social characteristics. This finding further implies that job satisfaction does not provide an explanation for the greater number of years of service and attendant greater age of opinion leaders among teachers of vocational agriculture.

8. There is no significant difference in conformity to social system norms on innovativeness by teachers of vocational agriculture who are opinion leaders and the conformity to social system norms on innovativeness of teachers of vocational agriculture who are not opinion leaders.

Implication -- Although opinion leaders are more innovative than the individual teachers they influence, this finding implies that they are not innovative to the degree that they are greatly different from the teachers they influence. This implies that opinion leaders must conform to the norms of the group better than any of his peers. The implication for state supervisory staffs is that opinion leaders do not differ enough from their peers in personal and social characteristics to be identified by using personal and social characteristics as criteria.

Recommendations

The recommendations for further research listed herein are based on the findings and conclusions drawn from this study, the experience and the impressions acquired by the writer in conducting the study.

Several questions which have not been answered have arisen as a result of this study. These questions provide the basis for the following recommendations:

1. Now that a beginning has been made in understanding the opinion leadership phenomenon as it applies to teachers of vocational agriculture, the investigator suggests that the study be replicated in several states. This replication should aid in reinforcing or in providing data needed to restate the conclusions drawn pertaining to the identification of opinion leaders and a determination of their personal and social characteristics. The replication should aid in determining whether the self-designating technique of identifying opinion leaders is as fruitless as it appeared in the present study. Evidently the self-designating technique had been a more reliable technique of identifying opinion leaders in other traditions of research. Why, then, did it correlate so little with the sociometric technique when applied to teachers of vocational agriculture?

2. Does competence in an area of the vocational agriculture program contribute to the degree of influence an individual teacher exerts in that area? Past experience with vocational agriculture teachers in the state in which the study was conducted and personal knowledge of the competence of the vocational agriculture teachers indicated to the investigator that a strong correlation existed between those teachers identified as opinion leaders and teachers with a high degree of competence in the area in which they were identified. A study should be undertaken to determine the correlation between competence and opinion leadership.

3. Do personality traits contribute to the degree of influence an individual teacher exerts? Must an individual be an extrovert, empathetic, aggressive, perceptive, charismatic or creative, etc. to be an opinion leader? Although difficult to design and administer, a study of these traits would increase the body of knowledge concerning the opinion leadership phenomenon.

4. What effect does the school and community situation have on the opinion leadership phenomenon? Do opinion leaders exist only in school and communities where there is sufficient academic and personal freedom for the teacher to develop and exercise personal influence? Or do opinion leaders develop regardless of the school and community climate? The answer to these questions would assist state supervisors in understanding and utilizing opinion leaders.

5. What effect does the type of supervisory program have on the opinion leadership hierarchies present in a state? Do influence patterns and networks differ in supervisory systems which are autocratic in nature as compared to supervisory systems which are democratic in nature? Certainly a study to determine the relationship between the factors should be undertaken.

6. Are opinion leaders among teachers of vocational agriculture also opinion leaders among the teachers in their own school system? Do they exert personal influence over science or biology teachers in their school systems? The answer to this question may assist in providing the answer to the questions of whether an opinion leader must show competence in the area in which he is influential or whether an individual exerts personal influence because he possesses a certain set of personal and social characteristics.

7. Do opinion leaders maintain their position in a social system over a period of time or is it transitory? This question suggests that the study should be replicated in the state in which it was originally conducted after a reasonable length of time has elapsed. Such a replication would provide insight into this question.

8. If state supervisory staff members are to reap the greatest benefit from the ability of opinion leaders to influence other teachers in a desirable direction, then special activities must be conducted involving opinion leaders and state supervisory staff members. Would opinion leaders lose their personal influence if it became apparent to other teachers that they were being provided special attention by the state supervisory staff? This question must eventually be answered if state staff members are to extensively utilize opinion leaders effectively and efficiently.

9. Who influences opinion leaders? Since opinion leaders in the present study indicated that they would typically seek out other opinion leaders as sources of advice and information, it would appear that this question was answered. However, it would seem logical that opinion leaders would also seek advice and information from a variety of other sources. Determining these sources would assist in gaining greater insight into the total structure of influence among teachers of vocational agriculture.

10. Finally, those hypotheses which were not accepted because differences were not significant at the statistical levels established by the investigator should be retested.

Concluding Statement

This study represents one attempt to understand the opinion leadership phenomenon as it applies to teachers of vocational agriculture. However, it seems that further investigation of this field would provide additional understanding and insight into an area which holds great promise in assisting state supervisory staffs in vocational agriculture in accelerating the rate of educational change in programs of vocational agriculture.

Summary

In order to summarize the data on characteristics of opinion leaders, Tables 1 and 2 were prepared. Analysis of the data in the tables indicate that opinion leaders did not differ significantly from their peers in the number of schools in which they had taught vocational agriculture, job satisfaction, money invested in professional growth, deviance from social system norms on innovativeness, cosmopoliteness, sources of information and publications read.

However, opinion leaders differed significantly from their peers in the following characteristics:

1. Opinion leaders were significantly older than their peers.
2. Opinion leaders had taught vocational agriculture for a significantly longer period of years than had their peers.
3. Opinion leaders had attained a significantly higher educational level than had their peers.
4. Opinion leaders had a significantly higher income from teaching than did their peers.
5. Opinion leaders held a significantly greater number of offices in professional educational organizations than did their peers.
6. Opinion leaders exhibited a significantly higher degree of social participation than did their peers.
7. Opinion leaders were significantly more innovative than their peers.

Table 1

Personal and Social Characteristics of Opinion Leaders and Their Peers Among Teachers of Vocational Agriculture in South Carolina in 1968

Characteristic	Average For Opinion Leaders	Average For Peers	Average For All Teachers
Age *	45.7	39.6	40.7
Years of Teaching Experience *	21.1	13.7	15.1
Number of Schools in which employed	1.92	1.86	1.88
Years in present job *	17.0	10.1	11.3
Credits earned since beginning to teach * (semester hours)	33.5	20.8	23.2
Personal money invested in professional growth	410.79	448.19	447.06
Salary	$8,758.41	$7,925.41	$8,086.06
Cosmopoliteness			
Other vo-ag depts. visited	3.07	2.65	2.73
Other depts. of instruction visited	1.62	1.58	1.59
Professional educational meetings attended			
district	13.4	13.2	13.3
state	3.86	2.77	2.98
regional	.21	.03	.07
national	.76	.08	.21
Publications Read			
Professional education	2.78	3.06	3.00
Technical agriculture	6.32	6.16	6.19
Social Participation * (Chapin Scale)	81.21	59.14	63.27
Job Satisfaction (Brayfield & Rothe Index)	71.50	69.96	70.25
Innovativeness * (Adoption Scale)	30.04	49.50	46.43
Deviance-from-norms on Innovativeness	.664	.681	.678

* Difference significant at the .05 level.

Table 2

Sources of Information and Professional Educational Offices Held by Opinion Leaders and Their Peers Among Teachers of Vocational Agriculture in South Carolina in 1968

Item	Total for Opinion Leaders	Total for Peers	Total for All Teachers
Sources of Information			
Personal	32	119	151
Impersonal	19	102	121
Within Agricultural Education	43	194	237
Outside Agricultural Education	8	27	35
Local	45	185	230
Non-local	6	36	42
Requiring cash outlay	24	120	144
Not requiring cash outlay	27	101	128
Requiring large amount of personal time	28	154	182
Requiring small amount of personal time	23	67	90
Educational Offices Held *			
Local	4	27	31
County or District	18	51	69
State	21	26	47
National	5	1	6

* Difference significant at the .05 level.

OPINION LEADERS AS LINKERS FOR CHANGE

William L. Hull
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Alvin Toffler captures the exponential rate of change in today's world in his recent book Future Shock which is available in paperback. I recommend it to you. After reading his cogent remarks, you may decide we should be discussing deceleration of change in education. I suspect none of us are completely comfortable with the new. Yet we are not satisfied with the present. We are discussing change strategies today because each of us believes the future promises more than the status quo.

Our task is to sort out the strategies appropriate for valid change from random suggestions or from demands of vested-interest pressure groups. The Center for Vocational and Technical Education engages in research on change process variables. Christiansen and Taylor (1966) pioneered a study of opinion leadership among vocational agriculture teachers in Ohio. Research on opinion leadership at The Center began in earnest with a study by Hensel and Johnson (1969). More recent studies by Bice (1970[a]) and Blanton, et al. (in press) have continued to refine knowledge of opinion leadership.

This paper examines the role of opinion leaders as linking agents for planned change. We shall look at problems associated with identification of opinion leaders, the linking role of opinion leaders, and planned change as a product of priorities and norms. The propositions put forth in this paper are not discrete statements. They are overlapping and at times, based on less than conclusive evidence. However, I hope you find the propositions thought-provoking and helpful in the formulation of change strategies.

Opinion Leadership

Proposition 1: By definition, opinion leaders are sought after by members of the group for information and advice.

Opinion leadership is a group phenomenon. The influence of an opinion leader usually is given to him by members of the group as a result of personal interaction. Research findings show few differences between opinion leaders and members of their groups. In a real sense they represent the group of "outsiders" and tend to legitimize actions of group members. In their leadership role, opinion leaders strive to maintain their influence in the group. Opinion leaders exist in every group regardless of its norms. There are opinion leaders of laggard groups as well as opinion leaders of innovative groups.

Proposition 2: Opinion leaders as a class, possess certain common characteristics which make them identifiable.

These characteristics are well documented in research. Hensel and Johnson (1969, pp. 15-16) have summarized them. Opinion leaders:

a. use more impersonal, technically accurate, and cosmopolite sources of information,

b. are older,

c. conform more closely to social system norms,

d. are more innovative,

e. are more competent in their sphere of influence, and

f. participate in more social and professional organizations

than group members upon whom they exert personal influence. Bice (1970[a]) found vocational agriculture opinion leaders to be in larger schools, with a greater per pupil expenditure, where communication tended to flow "upward" frequently.

Techniques exist for identifying opinion leaders. Probably, the most reliable is a sociometric technique which solicits peer nominations of individuals from whom they would seek information and advice. Hensel and Johnson (1969) concluded that vocational agriculture supervisors (key-informant technique) could identify teachers of vocational agriculture as opinion leaders in selected instructional areas. Research by Blanton et al. (in press) showed the key-informant technique to successfully identify about one-third of the opinion leader nominations solicited from peers. Use of either technique depends on resources such as lead time and money available for the selection process.

Proposition 3: Opinion leadership is a dynamic variable.

Katz (1957, pp. 65-70) in an analysis of three studies of opinion leadership, found opinion leadership was not a "trait" which some people possess. An opinion leader is influential only at certain times and with certain substantive areas. Blanton et al. (in press) found the status of most opinion leaders to be unstable among teachers of vocational agriculture during a two-year period. This finding suggests opinion leaders may have difficulty maintaining the high level of competence required for leadership in their sphere of influence. However, individuals identified as opinion leaders in more than one area of expertise maintained their influence for two years in the Blanton et al. study. Apparently an opinion leader can become "disenfranchised" from members of the group. Such action is less likely if the opinion leader maintains expertise in a variety of substantive areas.

Opinion Leaders as Linking Agents

Proposition 4: Opinion leaders legitimize social system norms for change agents.

Havelock's linker model (1969 p. 7-22) clearly places opinion leaders as members of the client system serving a gate-keeping, expediting role in regard to educational change. An elected official, such as the state president of the vocational agriculture teachers' association, represents the organization to others such as the state director of vocational education, the state legislature, and so forth. Frequently, an elected official may be an opinion leader although opinion leadership has been studied primarily as informal influence.

Use of opinion leaders on advisory councils and other consultative bodies can alert a change agent to social system norms which may be unfavorable to a desired change. The opinion leader is in an excellent position to interpret planned change to his constituency. However, the opinion leader may react against changes which upset the status quo and threaten his leadership. A change agent may reduce the risk of opinion leaders' negative perceptions by building relationships of trust and mutual confidence. This requires a type of straight-forward honesty which we all need to cultivate.

Proposition 5: Opinion leaders may lose their ability to communicate with group members.

If an opinion leader fails to assess correctly the desirability of an innovation in his area of expertise, he may lose group members' confidence. An opinion leader is expected to know about new techniques in his sphere of influence.

Opinion leaders who identify too closely with agents of change may take on their characteristics. This can be disastrous for change strategies which require the opinion leader to maintain rapport with his group. Everett Rogers tells the story of agricultural extension agents in India who were working with opinion leaders among Indian farmers. Due to the water level in the rice fields, the farmers wore their dhotis high above their knees. The extension agents, on the other hand, wore their dhotis low as a mark of an educated man. As the farmer opinion leaders increased their association with the extension agents, their dhotis began to slip. As their dhotis fell lower and lower, so did their influence with the other farmers. An opinion leader must maintain their identity with the group.

Proposition 6: Opportunities can be created for opinion leadership to emerge.

I am convinced that opinion leadership can be created. Since personal influence is transmitted through membership in groups, a prospective opinion leader must have opportunities to communicate with group members. By appointing agriculture teachers as chairman of committees or placing names on a program at a conference, you as a supervisor or teacher educator are providing an opportunity for these individuals to relate to their peers. This "opportunity to be heard" acts as a precursor for later development of opinion leadership. Not infrequently, existing opinion leaders pass on their influence by endorsing individuals.

In the Blanton et al. study (in press) opinion leaders attended a greater number of inservice workshops than their peers. Also, an opinion leader's readiness and willingness to discuss a program was the single most important reason for his nomination. Thus, an opinion leader must

be accessible both psychologically and physically. Proximity seems to be a key variable for opinion leadership. It is a surprising fact that individuals will use poor sources of information to answer questions if they are available and within easy access.

Within the vocational agriculture setting, one of the best opportunities for transmitting personal influence is in the district meeting of 15 to 20 teachers. Respondents in the Blanton et al. (in press) study indicated most face-to-face communication took place between supervisors and teachers in these meetings. Apparently, district meetings have the potential for enhancing or retarding the spread of personal influence.

Planned Change

The problem of coping with change seems to be of major concern for many individuals. For example, the technological influence of migration from the farm to the city, then back to the farm has an effect on the teaching of vocational agriculture. A successful teacher must acknowledge this force when counseling rural non-farm youth. Professionals in agricultural education must perceive change as a logical progression of events toward goals and objectives.

Proposition 7: Change must not be considered a capricious, random phenomenon.

"Change for change's sake" has little to offer agricultural educators in my opinion. A disruption in the system or a different way of doing things may catch the public's attention for a while. But the long-run objectives will be achieved by "the development of a better mouse trap." Unless innovations can boast a comparative advantage over existing practices, they merit little attention.

Planned change calls for a series of inter-related events to take place which include activities such as assessing the context of the situation, nominating alternative courses of action, evaluating these alternatives in light of objectives, and selecting a plan to be executed. After implementation this evaluation cycle continues to feed back information on how well "real world" activities correspond with the prescribed plan. A systematic progression toward priority objectives should characterize programs of planned change.

Usually successful change is grounded in the norms of the social system. Expectations for teachers of vocational agriculture differ in various regions of the nation. For example, an award winning livestock judging team is a sign of vocational agriculture excellence in some western states. Even modes of dress proclaim behavior expectations: The rugged western boots and hats of rural western America present a vivid contrast to the shirt and tie instruction in eastern metropolitan areas. An outside-the-system change agent would do well to observe local customs and respect these codes of dress.

Sometimes basic differences in philosophy are apparent between the change agent and the client system. A planned change which attempts to impose pre-determined attitudes and values on resisting clients usually meets with failure. Opinion leaders or other members of the client system may subscribe to the innovation in public when the change agent is present, then disavow any endorsement in private. Or the form of a change may be followed rigorously, but no attempt is made to capture the spirit or the intent of the innovation. Successful change requires a thorough assessment of the client system and systematic attention to perceived barriers to the change.

Proposition 8: Rapid change occurs by means of substitution.

The decision to implement a change by substituting different programs or personnel does not come easily. Rarely is the innovative program or person sufficiently well qualified to assure success in the client system. Frequently, there is little empirical evidence of the success of the new idea. Therefore, substitution usually means some risk of failure on the part of the change agent.

On the other hand, many innovations are sufficiently complex to require a number of related components. The only way to assure the prerequisites for an innovation such as a state evaluation system is to build in the necessary data support subsystems which provide accurate information. An innovation the magnitude of a state evaluation system requires a major commitment of resources by the client system. Lead time to work with existing personnel and/or program may not be available. In this situation, a unit substitution of a tested, exemplary innovation may be appropriate.

Incremental change is the safe, more conservative approach to innovation. Innovations which are divisible into less complex units can be installed in various stages in the client system. This approach causes less disruption in the client system than the substitution of large-scale innovations which displace existing structure. In the long run, incremental change may be more permanent, particularly if individuals working with the imposed innovation can be "won over" to its objectives.

Summary

I shall conclude this discussion with the following observations:

1. The opinion leader roles of legitimizer and exemplifier of group norms are available to change agents as avenues for access to the client system.

2. An opinion leader change strategy has a better chance of success if the priority objectives of the innovation are consistent with norms of the social system.
3. Involvement of opinion leaders in the planning of change assures some representation of the client system in the decision-making process.

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DISCUSSION

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Dr. Christiansen led a very lively discussion with the group during which time many questions were posed to the panel who responded. Some of the items coming from the discussion were:

Question: Are opinion leaders destroyed after they are used?

Response: Sometimes the individuals leadership potential is diminished, staff inside the organization may be very useful but are usually destroyed as a change agent.

Comment: Change is accomplished through a team effort. The time required for the change will depend on how radical the change is.

Dr. Christiansen summed up the discussion with seven points for a strategy for change.

(1) The program must be appropriate to the people for whom it is meant.

(2) We must work with all the people within the social system, the leaders and all others.

(3) We must use many techniques and above all we must demonstrate.

(4) We must involve those to be affected by the change in the planning for the change.

(5) We must promote and provide practice in evaluating the change.

(6) We must anticipate and minimize the social consequences of the change.

(7) The role of the change agent is to work himself out of a job.

We are in reality helping people to help themselves. Also we can't be all things to all people and sometimes we must take things slower.

Dr. Christiansen closed the discussion with the comment that crisis makes change more acceptable.

Comment: As change accelerates, educational leaders must move more carefully and be more cognizant of ethics in making changes rather than manipulating people in order to achieve their ends.

INNOVATIVE?? TEACHING METHODS FOR INTRODUCTORY COURSES IN EDUCATIONAL RESEARCH

James P. Key
Oklahoma State University

First, let me hasten to say that each of you will have to be the judge about the innovativeness of these methods. I have only a biased sample of one from which to infer and have not carried out sufficient validity checks on my design yet. Therefore, I would ask that you act as a panel of judges to at least provide me face validity through your critical analysis! As such, input for improvements of the course are heartily requested at any time during the discussion.

To start this presentation, I will present the major methods which might be considered innovative, and then we can come back and discuss them in more detail. The major approaches are these:

Innovations

1. Course Objectives
   - A. Stated in behavioral terms
   - B. Prepared by instructor and students
2. Specific Objectives
   - A. Stated in behavioral terms
   - B. Based on research book - Van Dalen
   - C. Based on statistics book - Popham
3. Underlying Objective ***
   - A. Create attitude toward use and conduct of research
   - B. Remove fear of research and statistics
4. Course Content
   - A. Logical basis for decision making
   - B. Research tools
   - C. Statistical tools
   - D. Computer tools

5. Special Methods

   A. Individual problem discussion - Doctoral, Masters
   B. Simplified approach to statistics
   C. Canned computer run
   D. Critiques
   E. Group discussion and strategic questioning

6. Student Evaluation

   A. Proposal
   B. Critiques
   C. Discussion

7. Course Evaluation

   A. Student evaluation sheet
   B. Faculty suggestions

8. Innovations?? Being Implemented or Considered

   A. Self paced instruction for commuters
   B. Pre-test - Post-test
   C. Specific proposal criteria
   D. Chart approach to statistical methods use
   E. Advanced and basic course

AGED 5980 - Research Design in Occupational Education

Instructor - James P. Key, Office: 239 Ag Hall

You agreed you wanted to learn how to:

1. Prepare a proposal for a report, thesis, or dissertation.
2. Use the tools and procedures of research to aid in making decisions.
3. Read and interpret the research literature.
4. Use statistics as a tool of research.
5. Use the computer as a tool in statistics and research.

In order to accomplish these objectives you agreed you wanted to:

1. Study the procedures, content and format and prepare a proposal for a report, thesis or dissertation to be submitted to your advisor or

committee by the end of class, or prepare a mini-study through use of the library.

2. Study the tools and procedures of research, discuss them in class and use them in preparing a proposal.
3. Read studies from the research literature and submit a minimum of five and a maximum of ten critiques of research studies, reports, or theses to aid in interpreting research.
4. Study the more common statistical methods, discuss them in class and use them in preparing to analyze the data in your study.
5. Practice using the computer to help you analyze the data in your study.

In order to be of greatest value I believe critiques should be:

1. Done on research studies from as many different sources as possible (at least one from a report in a research journal, one from a report in ERIC, and one from a report, thesis, or dissertation - the other two may be from any source).
2. Written (not more than two pages) in the formal research manner in the third person, past tense.
3. In two copies so I may keep one.
4. Following this format:
   a. Bibliographical entry: author, title, source, volume, date, pages, according to the OSU Thesis Writing Manual or A Manual for Writers (Kate L. Turabian) as you would write it in a bibliography.
   b. Problem statement and purpose: (What the study was about and why it was done).
   c. Hypotheses, questions or objectives of the study.
   d. Methods or procedures used. (Method of data gathering, statistics, others).

e. Primary results or findings.

f. Conclusions and recommendations (by the author of study).

g. Your critique of the study (What was good; what would you have changed).

h. Questions about the study (statistics, methods, others).

AGED 5980
RESEARCH DESIGN

Class	Date	Tentative Schedule	Assignment
1	_____	Orientation Course Objectives and Tour Library Methods Library Tour	Van Dalen Chs. 5 & 6
2	_____	Attitudes Toward Research Education, Teachers and Research Methods of Acquiring Knowledge ERIC, RCU Orientation	Van Dalen, Chs. 1 & 2 Popham, Ch. 1 *Kerlinger, Chs. 1 & 9
3	_____	Scientific Method Observation, Facts, Theories Descriptive Statistics	Van Dalen, Chs. 3, 4 & 13 Popham, Ch. 2 *Kerlinger, Ch. 9
4	_____	Analysis of the Problem Identification, Statement Definitions Writing the Report Descriptive Statistics	 Van Dalen, Chs. 7 & 15 Popham, Ch. 3
5	_____	Review of Literature Hypotheses, Data Tables Inferential Statistics (3 critiques should be in)	Handout Van Dalen, Ch. 8 Popham, Ch. 4 * Kerlinger, Chs. 2 & 9
6	_____	Solution of the Problem Research Evaluation Sampling Correlation	Van Dalen, Chs. 8 & 16 Popham, Chs. 5 & 6 *Kerlinger, Chs. 4 & 6
7	_____	Tools of Research Questionnaire, Interview, Scales Regression	Van Dalen, Ch. 12 Popham, Chs. 7 & 8 * Kerlinger, Chs. 26-33
8	_____	Historical Research Tools (Continued) t Test (Critiques should be finished)	Van Dalen, Ch. 9 Popham, Chs. 9 & 10 * Kerlinger, Ch. 20

* Suggested for Doctoral Students

Class	Date	Tentative Schedule	Assignment
9	____	Descriptive Research Surveys Analysis of Variance (Single Classification)	Van Dalen, Ch. 10 Popham, Chs. 11 & 12 *Kerlinger, Chs. 22 & 11
10	____	Experimental Research Control, Validity, Reliability Analysis of Variance (Multiple Classification) (Review of Literature should be finished)	Van Dalen, Ch. 11 Popham, Chs. 13 & 14 * Kerlinger, Chs. 21 & 22
11	____	Experimental Design Sources of Internal Invalidity Sources of External Invalidity Analysis of Covariance	Van Dalen, Ch. 11 Popham, Chs. 15 & 16 * Kerlinger, Chs. 15, 16, & 17
12	____	Computer Center Tour Data Processing Machines Factor Analysis (Proposal should be completed)	Popham, Ch. 17 * Kerlinger, Ch. 36
13	____	Computer Program Run Review Proposals	
14	____	Computer Program Analysis Review Proposals Non-Parametric Statistics	Popham, Chs. 18 & 19 * Kerlinger, Ch. 14
15	____	Review Appropriate Techniques	Popham, Ch. 20
16	____	FINAL	

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Research References:

Barnes, Fred P.	Research for the Practitioner in Education, 1964	370.78 B 2605r
Barnes, John B.	The Dynamics of Educational Research, 1958	370.78 B 261d
Barr, Arvil S.	Educational Research and Appraisal, 1953	370.78 B268e
Best, John W.	Research in Education, 1959	370.78 B 561r

Research References:

Borg, Walter R.	Educational Research, 1965	370.78 B 732e
Culbertson, Jack A.	Educational Research: New Perspectives, 1963	370.78 C 967e
Gage, N. L. ed.	Handbook of Research on Teaching, 1963	Reference Desk
Good, Carter V.	Methods of Research, 1954	378.3 G 646m
Hillway, Tyrus	Introduction to Research, 1964	378.32 H 655i
Hillway, Tyrus	Handbook of Educational Research, 1969	378.78 H 655h
Kerlinger, F. M.	Foundations of Behavioral Research, 1966	150.72 K 39f
McAshen, Hildreth H.	Elements of Educational Research, 1963	370.78 M 116e
Miller, Delbert C.	Handbook of Research Design and Social Measurement (2nd Edition), 1970	370.2 M 647h
Rummel, J. Francis	An Introduction to Research Procedures in Education, 1964	370.78 R 937i
Rummel, J. Francis	An Introduction to Research Procedures in Education, 1958	370.78 R 937i
Sax, Gilbert	Empirical Foundations of Education, 1968	370.78 S 272e
Travers, Robert M.	An Introduction to Educational Research, 1958	370.78 T 781i
Van Dalen, Deobold	Understanding Educational Research, 1966	370.78 V 224u
Wert, James E.	Statistical Methods in Educational and Psychological Research, 1954	311.2 W 499a
Wiersma, William	Research Methods in Education, 1969	370.78 W 648r

Statistics:

Garlington, W. K. and H. E. Shimota	Statistically Speaking, 1964	311.2 G 239s
Garrett, Henry E.	Statistics in Psychology and Education, 1964	311 G 239s
Guilford, Joy P.	Fundamental Statistics in Psychology and Education, 1965	311.2 G 956f
Popham, W. James	Educational Statistics, 1967	370.182 P 827e
Snedcor, George and W. G. Cochran	Statistical Methods, 1967	311.2 S 671s6

Style Manuals:

Campbell, William G.	Form and Style in Thesis Writing, 1954	378.242 C 192f
Graduate College, OSU	Thesis Writing Manual, 1971	
Turabian, Kate L.	A Manual for Writers of Term Papers, Theses and Dissertations, 1966	378.242 T 929c

ERIC:

Research in Education

Abstracts of Research Materials

Abstracts of Instructional Materials

Research Review and Synthesis Documents on:

- Agricultural Education 1966
- Business and Office Education, 1st & 2nd Ed. 1966, 1970
- Distributive Education, 1st & 2nd Ed. 1966, 1970
- Health Occupations Education, 1969
- Home Economics Education, 1st & 2nd Ed. 1966, 1970
- Industrial Arts, 1st & 2nd Ed. 1966, 1969
- Technical Education, 1st & 2nd Ed. 1966, 1969
- Administration of Vocational and Technical Education, 1970

Analysis for Curriculum Development in Vocational Education, 1969

Economics of Vocational Education, 1968

Placement and Follow-up of Vocational Education Students, 1970

Vocational Education in Rural Areas, 1969

Journals:

American Education Research Journal

Journal of Educational Research

Journal of Experimental Education

NEA Research Bulletin

Phi Delta Kappan - Research Quarterly

Teachers College Record

Indexes, Abstracts and Reviews:

Dissertation Abstracts

Education Index

Education Abstracts

Encyclopedia of Educational Research

Mental Measurements Yearbook - O.K. Buros

Readers Guide

Research Studies in Education - Phi Delta Kappa

Review of Educational Research

Technical Book Review Index

Thesis Abstracts

A SAMPLE OF SPECIFIC PERFORMANCE OBJECTIVES BASED ON EDUCATIONAL STATISTICS, W. JAMES POPHAM, HARPER AND ROW, 1967.

You should be able to: Popham - Chapter 1

1. List the two primary uses of statistics.
2. Describe the difference between a statistically significant and a practically significant study or result.

Popham - Chapter 2

1. Identify different graphic techniques for describing data.
2. Demonstrate the construction of a frequency graph, histogram, polygon and curve describing a group of numbers.
3. Calculate the measures of central tendency.
4. Calculate the measures of variation among a group of numbers.
5. Describe two major values of descriptive statistics to the teacher.

Popham - Chapter 3

1. Recognize the normal curve.
2. List percent of the area of the curve included in each standard deviation unit from the mean.
3. Recognize a negatively skewed curve.
4. Recognize a positively skewed curve.
5. Describe where the mean occurs in relation to the median in a positively and a negatively skewed curve.
6. Define percentile by use.
7. Define standard score by use.
8. Define normalized standard score by use.

Inferential Statistics Popham - Chapter 4

1. Define descriptive statistics by usage.
2. Define inferential statistics by usage.

3. Define variable quantitative by usage.

4. Define variable qualitative by usage.

5. Define population by usage.

A SAMPLE OF SPECIFIC PERFORMANCE OBJECTIVES BASED ON THE RESEARCH BOOK - UNDERSTANDING EDUCATIONAL RESEARCH, DEOBOLD B. VAN DALEN, McGRAW-HILL, 1966.

Objectives
AGED 5980

You should be able to: Van Dalen, Chapter I

1. Name six of the attitudes that exist toward research.

2. Name five expanding areas of research in education.

3. Name two methods of improving the quality of research.

4. List five ways you can help improve teaching or education through research.

You should be able to: Van Dalen, Chapter II

1. List the major sources of knowledge man has drawn on down through the ages to solve his problems.

2. Demonstrate your understanding of the deductive syllogism by writing an example not used in the book or class, labeling the major premise, minor premise and conclusion, and identifying your example as being categorical, hypothetical, alternative or disjunctive.

3. Demonstrate your understanding of the deductive syllogism by analyzing your example, stating whether it is true or false and if false, state which part made it false.

4. Demonstrate your understanding of inductive reasoning by writing an example not given in the book or in class.

5. Name the two characteristics of a sample which will greatly affect the soundness of an indictive conclusion.

6. List the major advantage of the inductive and the deductive argument.
7. Demonstrate your understanding of the scientific method by describing the steps in the process.
8. Given a simple problem, apply the steps of the scientific method to solve it.

You should be able to: Van Dalen, Chapter III

1. Name the postulates into which the assumptions of the uniformity of nature underlying the scientific method are divided.
2. Name the postulates of the assumptions concerning the psychological process underlying the scientific method.
3. Name the three major goals of scientific method, research, and science.
4. Name the four major differences between research in the social sciences and the natural sciences.
5. Name four major conditions necessary for accurate observation.
6. Define fact and theory from the scientist's point of view.
7. List the ways facts and theories are related and used in the scientific method.

You should be able to: Van Dalen, Chapter IV

1. Describe the conditions necessary for successful observation by writing an example of each.
2. List the obstacles to accurate observation reported by Van Dalen.
3. List the methods which can be used to objectify observations as listed by Van Dalen.
4. State the scientist's definition of fact given by Van Dalen.
5. Identify the three levels of facts given examples of each.
6. State a practical definition of theory.
7. List the different types of theories.

8. List six major functions of theories.

9. List four relationships between theories and facts.

A Sample of a Simplified Approach to Teaching Statistics

ANALYSIS OF VARIANCE

	Lecture	Discussion	Demonstration
	x_1	x_2	x_3
	1	3	5
	2	4	6
	3	5	7
	4	6	8
	5	7	9
E =	15	25	35
$\bar{x}$ =	3	5	7
$\bar{\bar{x}}$ =		5	

E = Sum of

x = Observation

$\bar{x}$ = Mean of the Observations

$\bar{\bar{x}}$ = Grand Mean (Mean of the Group Means)

Among Group Variation = $E\ (\bar{x} - \bar{\bar{x}})^2$

$\bar{x}$	$\bar{x} - \bar{\bar{x}}$	$(\bar{x} - \bar{\bar{x}})^2$	$(\bar{x} - \bar{\bar{x}})^2 N$
3	-2	4	20
5	0	0	0
7	2	4	20
E = 15	0	8	40

$\bar{\bar{x}}$

$\bar{\bar{x}} = 3$

K = No. of Groups

N = No. in each section

Among DF = K - 1

Within DF = K(N-1)

Total DF = KN - 1

SS Among = 40

Within Group Variation = $E\ (x - \bar{x})^2$

x_1	$x - \bar{x}$	$(x - \bar{x})^2$	x_2	$x - \bar{x}$	$(x - \bar{x})^2$	x_3	$x - \bar{x}$	$(x - \bar{x})^2$
1	-2	4	3	-2	4	5	-2	4
2	-1	1	4	-1	1	6	-1	1
3	0	0	5	0	0	7	-1	0
4	1	1	6	1	1	8	0	1
5	2	4	7	2	4	9	2	4
E = 15	0	10	25	0	10	35	0	10
$\bar{x}$ = 3			5			7		

SS Within = 30

TOTAL = $E\ (x - \bar{\bar{x}})^2$

x_1	$x - \bar{\bar{x}}$	$(x - \bar{\bar{x}})^2$	x_2	$x - \bar{\bar{x}}$	$(x - \bar{\bar{x}})^2$	x_3	$x - \bar{\bar{x}}$	$(x - \bar{\bar{x}})^2$
1	-4	16	3	-2	4	5	0	0
2	-3	9	4	-1	1	6	+1	1
3	-2	4	5	0	0	7	+2	4
4	0	0	6	+1	1	8	+3	9
5	0	0	7	+2	4	9	+4	16
		E = 30			E = 10			E = 30

SS TOTAL = 70

Source of Variation	Sums of Deviations Squared	DF	Mean Square	F
Among (Between)	40	2	20	8
Within (Error)	30	12	2.5	
Total	70	14		

SIGNIFICANT AT THE .01 LEVEL OF CONFIDENCE

F .95 with 2 & 12 DF = 3.88

F .99 with 2 & 12 DF = 6.93

Among $E\ (x - \bar{\bar{x}})^2 N = \overset{K}{E}\ \frac{(Ex)^2}{N} - \frac{(Ex)^2}{KN}$

Within $E\ (x - \bar{x})^2 = \overset{K}{E}\ (E\ x^2 - \frac{(E\ x)^2}{N}$

Total $E\ (x - \bar{\bar{x}})^2 = \overset{KN}{E}\ x^2 - \frac{(E\ x)^2}{KN}$

THE EVALUATION INSTRUMENT THE STUDENTS USE TO EVALUATE
AND HELP IMPROVE THE COURSE

Research Methods Evaluation

Introduction:

	Low 1	2	3	4	High 5
Value of reasoning discussion to understanding research.					
Amount of help library orientation gave you.					
Value of problems being discussed by the group.					
Importance of study of types of research.					

Recommendations: _____

_____

Experimental design:

Benefit of design study on your understanding of how research is designed.					
Degree which I understood validity, reliability and objectivity related to design.					
Degree which I understood validity, reliability and objectivity related to instruments.					
Value of study of tools of research (Questionnaire, Interview, etc.)					
Value of learning sampling techniques.					

Recommendations: _____

_____

Computer:

	Low 1	2	3	4	High 5
Value of working with keypunch, duplicator, etc.					
Benefit of actually making a program run.					
Benefit of analyzing the program.					

Recommendations: _____

_____

Statistics:

Value of covering descriptive statistics.					
Benefit from learning how to calculate correlation.					
Benefit from learning how to calculate chi square.					
Value of studying inferential statistics.					

Recommendations: _____

_____

Proposal Writing:

Value of analysis of problems.					
Value of study of hypotheses.					
Value of study of writing procedures.					
Value of sample proposals.					

Recommendations: _____

_____

Critiques:

	Low 1	2	3	4	High 5
Benefit to your understanding of research.					
Benefit to your knowing where to find research.					

Recommendations: _____

_____

Instruction:

Effectiveness of organization.					
Did it meet class-made objectives?					

Recommendations: _____

_____

Instructor:

Effectiveness in teaching research methods (report preparation).					
Effectiveness in teaching research evaluation (statistics, terms).					

Recommendations: _____

_____

Text: A. Van Dalen
B. Popham

Benefit to me in my research.					
Aided my understanding of research.					
My ability to understand it.					

Recommendations: _____

_____

Research Definitions

The following phrases, frequently found in technical writings are defined here for your edification and enlightenment. This list was plagiarized from some unknown genius who evidently had read one too many scientific papers.

"IT HAS LONG BEEN KNOWN ____" I haven't bothered to look up the original reference.

"OF GREAT THEORETICAL AND PRACTICAL IMPORTANCE" Interesting to me.

"WHILE IT HAS NOT BEEN POSSIBLE TO PROVIDE DEFINITE ANSWERS TO THESE QUESTIONS ____" The experiments didn't work out, but I figured I could get publicity out of it.

"EXTREMELY HIGH PURITY, SUPERPURITY" Composition unknown except for the exaggerated claims of the supplier.

"THREE OF THE SAMPLES WERE CHOSEN FOR DETAILED STUDY" The results on the others didn't make sense and were ignored.

"ACCIDENTALLY STAINED DURING MOUNTING" Accidentally dropped on floor.

"HANDLED WITH EXTREME CARE DURING THE EXPERIMENTS" Not dropped on floor.

"TYPICAL RESULTS ARE SHOWN" The best results are shown.

"PRESUMABLY AT LONGER TIMES ____" I didn't take the time to find out.

"THESE RESULTS WILL BE REPORTED AT A LATER DATE" I might get around to this sometime.

"THE MOST RELIABLE VALUES ARE THOSE OF JONES" He was a student of mine.

"IT IS BELIEVED THAT ____" I think.

"IT IS GENERALLY BELIEVED THAT ____" A couple of other guys think so too.

"IT MIGHT BE ARGUED THAT ____" I have such a good answer for this objection that I shall now raise it.

"IT IS CLEAR THAT MUCH ADDITIONAL WORK WILL BE REQUIRED BEFORE A COMPLETE UNDERSTANDING ____" I don't understand it.

"CORRECT WITHIN AN ORDER OF MAGNITUDE" Wrong.

"IT IS TO BE HOPED THAT THIS WORK WILL STIMULATE FURTHER WORK IN THE FIELD" This paper is not very good, but neither are any of the others on this miserable subject.

"THANKS ARE DUE TO JOE GLOTZ FOR ASSISTANCE WITH THE EXPERIMENT AND TO JOHN DOE FOR VALUABLE DISCUSSIONS" Glotz did the work and Doe explained what it meant to me.

FOURTH SESSION

Chairman: William H. Wiley, Dean
College of Agricultural Sciences
Clemson University

Secretary: Wille F. Jackson, Head
Agricultural Education Department
Alcorn A & M College

A TECHNICAL INTERNSHIP IN VOCATIONAL AND ADULT EDUCATION

Vanik S. Eaddy
Auburn University

A knowledge of agribusiness operations is essential to teachers of vocational agriculture who are preparing students for occupations in agriculture. There is no substitute for occupational experience in teaching relevant vocational subject matter. Lack of personal experience was not a serious problem for teachers of vocational agriculture who had farm experience and taught production courses. The recent shift to objectives in agribusiness and rural industry has forced many of our teachers to teach in unfamiliar subject matter. Moreover, technological changes and economic pressures in the agricultural industry have produced demands for job competencies which were not required in the immediate past. A need exists for vocational teachers to remain abreast of the changing occupational competencies. One of the avenues available is graduate in-service study through the technical internship program.

The internship program was designed to provide a supervised practicum for graduate students to familiarize themselves with technological changes as well as to become acquainted with the job competencies found in a typical agribusiness concern.

It was anticipated that each teacher spend three weeks in a selected agribusiness. The selection of businesses was a cooperative venture between the intern, state supervisory staff, and Auburn University teacher education staff. An effort was made to effect placement in a progressive concern which specialized in products or services closely allied to the interests and needs of the teacher's program. Graduate students enrolling in this course were known as "interns" and were visited on the job by

Auburn University teacher educators. The intern shared in the planning of his experiences to observe and perform the skills or activities required of persons within each of the job titles which require agricultural competencies in the business. This procedure provided exposure to the occupational requirements of job titles ranging from the very elementary to the managerial levels of responsibility.

A survey form and letter of inquiry were sent to determine teacher preference of occupational cluster in business selection. Assignments to businesses were made in advance. Registration was held at a designated time and place on campus followed by an orientation. The dates of performance were decided upon jointly by the intern, business manager, and instructor.

A training plan was prepared by each intern to insure that his time would be spent profitably. The business manager or owner was included in the development of this plan. Copies of this plan were provided the business manager, instructor, principal, superintendent, and district supervisor.

Every effort was made to establish favorable public relations through courteous treatment of contacts in the agribusinesses as well as through the public news media. This program did not result in additional cost or inconvenience to the cooperating business. Interns were not reimbursed for labor or services provided.

A letter grade was assigned based upon performance at the training center, an agribusiness survey, a task analysis of job titles requiring agricultural competencies, and a training plan or course of study designed to prepare students for entry into the occupational cluster studied.

The agribusiness survey consisted of four forms designed for interns' use when interviewing managers or proprietors. Form I was designed to determine general information concerning the product or service provided by the business. Also included was a summary of the persons employed and placement opportunities. Form II was suggested to record job titles found in the business and to determine the employment status. Form II served as a basis for developing the plan of study and deciding which job titles should warrant detailed study. Job titles having agricultural education requirements were analyzed using Form III and IV to determine occupational activities and competencies encountered in job performance.

Interns were instructed to perform a task analysis of job titles in which placement opportunity might be possible for agribusiness students or graduates. Task Listing Sheet, Form I, was used to establish tasks required of persons in selected job titles, frequency of performance, relative importance, and learning difficulty. Steps in performing each task were listed on the Task Detailing Sheet, Form II, and classified according to type of performance and learning difficulty. The task analysis was conducted by the interns as a performance exercise whenever possible. Tasks which were inappropriate or impossible for interns to perform were recorded from observation only. Interns were encouraged to perform as many tasks and observe as many competencies performed as circumstances would permit.

Summary

A technical internship in agricultural education was established for graduate students in the Department of Vocational and Adult Education at Auburn University. This course was offered for five quarter hours for the first time during Summer Quarter, 1971. A period of three

weeks performance was required during which interns were placed in cooperating agribusinesses for detailed study, observation, and performance of the job competencies required of agribusiness employees.

A total of 16 interns were accepted for enrollment and placed in selected agribusinesses according to the occupational family requested. Four interns performed in agricultural machinery sales and service concerns. Ornamental horticulture and floriculture firms were chosen by four interns. Three men were placed in the building industry, two with a general contractor and another with a metal building fabricator. In the forest industry, two interns studied timber management, plywood, and pulpwood, and pulpwood manufacture. One intern was placed in a poultry cooperative and another in a cooperative handling agricultural supplies and equipment. A modified internship was arranged for one person who conducted an agribusiness technology survey in the commuting radius of Jerrerson State Junior College in Birmingham, Alabama.

An evaluation was conducted of this pilot effort. A reaction questionnaire was provided for intern and business manager response. The results of this inquiry will be utilized in more effective planning for this form of in-service education in subsequent years.

FORM I

AGRICULTURAL BUSINESS SURVEY QUESTIONNAIRE

General Information
(Complete one for each business or major division)

A. Company (firm, organization, agency or service)

Name _____
Main product, or service, of the company _____

Which of the following does the firm perform? (Check all that apply.)

1. ( ) Manufacturing or production
2. ( ) Processing
3. ( ) Sales
4. ( ) Service
5. ( ) Others
   Specify _____

B. Employees:

Total number of persons employed by company _____
Total number of persons employed full time _____
Total number of persons employed part time _____
Total number of persons employed in which agricultural education training is desirable _____
Total number of persons employed in which a farm or rural background is desirable _____

C. Placement Opportunities

1. In accordance with company policy, can your company employ high school age personnel? Yes ___ No ___ No stated policy _____

2. How many high school students do you presently employ? _____

3. If none, have you ever employed high school students? Yes ___ No ___

4. Has your business ever participated in a coordinated school placement employment program for high school students? Yes ___ No ___

(See codes next page)

FORM II - EMPLOYMENT STATUS
(Complete for business or major division)

	Title of Job	Educational Requirements for Job Entry	No. of Employees	Level of Employment	Educ. & Agri. Background	Number of Job Opportunities (openings) Last 2 yrs.	Next 2 yrs.
	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1.							
2.							
3.							
4.							
5.							
6.							
7.							
8.							
9.							
10.							
11.							
12.							

CODES

(8) Code for Educational Requirement

1. None
2. Eighth grade
3. High school diploma
4. Technical or special education
5. Some college
6. College degree
7. Other

(10) Code of Level Employment

1. Professional
2. Technical
3. Proprietors and managers
4. Sales
5. Clerical
6. Skilled
7. Semi-skilled
8. Unskilled

(11) Code of Educational and Agricultural Background

1. Farm background
2. High school graduate
3. High school graduate with vocational agriculture training
4. College graduate of agriculture
5. High school and college
6. Farm-reared and college graduate in agriculture
7. College graduate in agriculture and professional experience in agriculture

FORM III

OCCUPATIONAL ACTIVITIES OF WORKERS ENGAGED IN OCCUPATIONS IN OFF-FARM AGRICULTURAL BUSINESSES, INDUSTRIES & AGENCIES

(Complete one for each job title listed on Form II.)

Job Title

Occupational Activity	Performance Scale: Daily	Weekly	Monthly	Annually	Never	
1. Extending credit						
2. Interpretation of merchandise, labels, tags & directions						
3. Installment selling						
4. Organization & arrangement of store						
5. Mail and telephone procedures						
6. Constructing displays						
7. Meeting non-farm people						
8. Keeping sales & stock records						
9. Measuring and weighing merchandise						
10. Receiving and marking merchandise						
11. Buying stock						
12. Inventory and stock control records						
13. Writing sales or business letters						
14. Filing						
15. Writing sales slips						
16. Handling money						
17. Meeting farm people						
18. Store and customer protection						
19. Using parts manual & sales manual						
20. Using the cash register						
21. Using the calculator						
22. Using the adding machine						
23. Using the typewriter						
24. Making outside sales						
25. Making inside sales						

FORM IV

RELATED INSTRUCTION NEEDS FOR WORKERS ENGAGED IN OCCUPATIONS IN OFF-FARM AGRICULTURAL BUSINESSES, INDUSTRIES AND AGENCIES
(Complete one for each Job Title Listed on Form II.)

Job Title _____

Competency Area	Needs Scale: Daily	Weekly	Monthly	Annually	Never
1. Human Relations					
2. Plant Cultural Practices					
3. Sheet Metal Work					
4. Concrete Work					
5. Fruit & Nut Production					
6. Plumbing					
7. Arithmetic Skills					
8. Dairying					
9. Record Keeping					
10. Small Buildings Construction					
11. Farm Management					
12. Using Farm Machinery					
13. Farm Ponds					
14. Plant Propagation					
15. Marketing Farm Crops					
16. Livestock Marketing					
17. Soil Management					
18. Selecting & Fitting Tools					
19. Animal Growth & Development					
20. Planning Construction & Repair Products					
21. Field Crops Production					
22. Small Gasoline Engines					
23. Chemical Weed Control					
24. Producing & Managing Greenhouses					
25. Electricity					
26. Forage Crops Production					
27. Merchandizing Meat and Meat Products					
28. Arc Welding					
29. Arborculture					
30. Pest Control					
31. Animal Sanitation					
32. Vegetable Production					
33. Machinery and Equipment Selection					
34. Advertising					

FORM IV (Continued)

Job Title _____

Competency Area	Needs Scale: Daily	Weekly	Monthly	Annually	Never
35. Poultry Production					
36. Processing Fruit & Vegetables					
37. Processing & Marketing Poultry & Poultry Products					
38. Petroleum Products					
39. Marketing Ornamental Plants					
40. Seed Technology					
41. Producing & Managing Nursery Crops					
42. Turf Management					
43. Maintaining Farm Machinery					
44. Small Grain Crops Production					
45. Fencing					
46. Feeds and Feed stuffs					
47. Processing and Marketing Forestry Products					
48. Commercial Fertilizers					
49. Organization & Structure of Business					
50. Landscape Design					
51. Dairy Products Manufacturing & Distribution					
52. Paint, Painting & Finishing					
53. Plant Growth and Development					
54. Cold Metal Work					
55. Livestock Production					
56. Woodworking					
57. Salesmanship					
58. Government Laws & Regulations Regarding Merchandise					
59. Gas Welding					
60. Pesticides					
61. Building and Hardware Supplies					

FORM I

TASK LISTING SHEET

Job Title: _____

No.	Task	Frequency of Performance	Importance	Learning Difficulty

Legend:

Frequency of Performance
1. Daily
2. Weekly
3. Monthly
4. Annually
5. Never

Importance
1. Very important
2. Important
3. Not important

Learning Difficulty
1. Very difficult
2. Difficult
3. Easy

FORM II

TASK DETAILING SHEET

Job Title: _____

No.	Steps in Performing the Task	Type of Performance	Learning Difficulty

Legend:

Type of Performance
1. Recall
2. Discrimination
3. Manipulation

Learning Difficulty
1. Very difficult
2. Difficult
3. Easy

THE NEED FOR AND THE PRODUCTION OF FILM LOOPS

Bruce Simpson
University of Arkansas

The Need

Individualized instruction has taken on new importance and meaning with the recent development of additional tools, specifically the film loop projector and the cassette tape player. With these "student proof" items available at a reasonable cost we have begun to talk more of multi-media presentations--that is, selecting specific media to do the best possible job of teaching in a specific instructional situation, group or individual.

The value of utilizing educational technology has been recognized for many years. B. F. Skinner, writing during the initial development of programmed instruction, voiced the need for use of this new technology as a means of releasing the teacher to do "real teaching." The need was noted by Leslie Briggs when he listed as a problem, "a greater need for individualized instruction in the face of growing numbers of children to be educated."

Audio-visual education has been shown to be valuable for instruction for all students. Both bright and dull students profit from various instructional materials. Research has shown that a variety of teaching materials, varied in a planned sequence, produce best learning results.

Considerable research has compared the effectiveness of various media for teaching mechanical skills. A. S. Vander Meer published a report in 1943 listing results obtained by varying the procedure in using demonstration films. The results indicated a definite reduction

of time needed to train lathe operators and enabled the learners to acquire more factual information about machine operation.

There has been a proliferation of educational communications media. Yet a crisis exists in education at a time when facilities for communications are almost unlimited. S.N. Postlewait, in his book "The Autotutorial Approach to Learning," indicates that actually the problem is simple. He writes:

> Never in the history of man have so many communications devices been available. Actually, the problem is simple and basically related to the aforementioned principle that "learning must be done by the learner." Practically all information known to man is written as soon as it is discovered. Supposedly, anyone who can read, potentially can learn whatever he wishes. If this were true the only effort necessary would be writing and distributing text books. No one accepts this as the solution because the nature of human beings is such that this would result only in limited success. It is necessary to create an environment in which the learner is motivated to become involved in the process. Important components in the environment are sometimes rather non-intellectual and seemingly insignificant, e.g., the proximity of related materials can be a key factor in successful achievement. It is not enough to build a complex of laboratories, classrooms, and libraries, and to establish a routine of schedules. This structuring frequently is a deterent to learning and may frustrate the process it is supposed to facilitate.

People learn through different stimuli and multimedia can provide this stimuli. Leslie Briggs believes there is some justification in a "shotgun approach" and by using a variety of media the likelihood that each student will learn is improved while preventing boredom and maintaining interest by frequent changes of media. He further states:

> The end result of the proposed procedure would be production of small units of instruction which are grouped in such a way as to make use of one medium for an optimal time period, based on a trade-off between very brief exposure (to avoid boredom) and very long exposure (to make for economy in production and convenience in changing from medium to medium). In general, the goal is to cluster together elements of instruction for which the same medium would be effective in providing the needed conditions of learning. Some constraints will be placed on this clustering, however,

> by the logical structure of the subject matter and the process by which mastery of one objective establishes a prerequisite for mastery of the next one.

Dale Nish, in 1963, used the multimedia approach to education to conduct an experiment of a "PolySensory Instructional System for Teaching Knowledge and Skills" with thirty students in grades 6 through 12 at Washington State University. This study indicated that multimedia systems can be used effectively to teach all types of knowledge and skills such as those studied. In 1967, Harold A. Sergeant conducted an experiment on the multimedia approach in teaching arc welding processes. The results of his study indicated that the multimedia approach was effective in teaching knowledge and high level perceptual motor skills involved in arc welding.

After conducting an experiment on the use of multimedia to teach basic electrical competencies in 1967, Edwin Hill stated:

> The self-instructional characteristics of the system were quite apparent. Very little instructor time was requested by individual students. After becoming familiar with this mode of instruction, they requested less than 17 seconds of instructor assistance per pupil, per lesson. This is an advantage which should be considered when evaluating the system.

About ten years ago Technicolor gave us the silent film cartridge projector that is so simple to operate that it about eliminated any excuses we had for not using individualized instruction. Here was a tool capable of replacing a large percent of our teacher demonstrations. Many of us became very enthusiastic, almost joyful. Our array of tools was now near completion. We could use printed materials with photographs and drawings, narrated slides and film strips, and motion pictures in a combination--the best media to do the best possible job of teaching in a specific instructional situation.

After ten years we find there isn't much use being made of the film loop projector. Was it because silent films couldn't teach? Eastman Kodak repudiated this when they sponsored the Yale Chronical of American History film series in the 1920's to prove the value of motion pictures for education. Our problem is more serious. It is the lack of suitable film loops.

Film loops are being cranked out by the hundreds. Many people have climbed on the bandwagon with nothing more than a good Super 8 camera and enthusiasm or a desire to make a profit. In reviewing film loops these are the most common weaknesses I have found:

No apparent objectives other than to sell

Scenes are not timed for student comprehension

Long or medium scenes (shots) used when close-ups are needed

The action is too fast to follow

The action is hidden or partially hidden by a hand or body

Unnecessary action - action which is not pertinent to the subject being presented

Use of the wrong media - motion pictures used when printed materials or slides would have been better and less expensive

We, as educators, must set the pace for film loop production. The quality of the educational content of film loops must be improved if we are to realize the potential inherent in this media. Can any educator produce a quality film loop? Yes, provided he is willing to put forth the necessary effort.

Planning and Production

A background in two areas is required for the successful planning of an 8 mm film loop. They are (1) a knowledge of the subject matter or

topic to be covered and (2) an acquaintance with the 8 mm film medium and its practical use in instruction. The first area requires time, study and experience, which most of you already have, while the second requires only research. The research is no real problem as there have been many studies on the use of film and film loops in teaching. Hardly a month goes by that some educational periodical doesn't carry an article concerning some aspect of how to teach with film loops.

I will not attempt to tell you there is no work involved in the production of a film loop. Film planning is primarily a higher level mental process and many of us attempt to avoid such tiring processes, but it must be done if quality films are to be produced. There is no way I can over emphasize the necessity of planning. You will not be dealing with vague, verbal abstractions, but with definite visual forms that require you to be very specific.

When planning a trip to an unfamiliar area you first refer to a map and plan your route. The same procedure applies when making a film. First you must go through a sequence of planning. The filming is relatively easy; however, the planning requires your full mental faculties. It must have your undivided attention.

Before discussing the planning and production of a film I should mention that there are several pieces of equipment you will need in production.

A single reflex camera with either a zoom lens or both a wide angle and a standard lens. If you plan to reproduce the film, a 16 mm camera is almost a must, as most 8 mm film appears grainy when reproduced.

Light meter

Tripod

Light - two with wide angle reflectors will probably be enough

Splicer - perferably a tape splicer

Editer - a must

Now let us look at a sequence of planning steps. Each film requires its own degree of planning and it is up to the producer to judge which steps are necessary for each subject.

We usually start with a (1) general idea, vaguely expressed such as "to make a film on production of hardwood cuttings" or "to make a film on how to use the table saw."

The next step is to develop the idea into a more (2) definite statement of objective or general goal for the proposed film.

The goal or objective must next be developed into (3) behavioral objectives. Who will be the audience? What specifically, do you want them to learn from the film?

From the behavioral objectives develop an (4) outline of points, of subject matter content, that support the objectives. This will be the basis for the film scenes. The outline should indicate the specific media that would be best to use. You should ask yourself several questions at this point, such as: Is motion important to the subject? Will a written description serve adequately (consider the audience as well as the subject matter)? Rather than to program course X it would probably be better to program component A, B, and N of course X. Also at this point the instructional sequences are developed.

Assuming you have decided that a motion picture will be the best media you are now ready to (5) describe how the content is to be developed or treated. It should be organized into story telling form.

Following the description you develop a (6) storyboard. It may take the place of or be combined with the preceding step. Use simple sketches on 3 x 5 or 5 x 8 cards that show the sequences described in step 5. The sketches make you think visually about the topic. During the development of the storyboard, you may find a need for reorganization, deletions, or additions. Keep the objectives before you as you make up and study the storyboard.

If you plan to use a sound film or taped narration, you should produce a (7) script. In fact, it will probably be of benefit to prepare a script for even a silent film as it will aid you in covering the subject thoroughly.

If you have survived the preceding exercise, you are ready to begin the production of a film. Also, you can take heart in the fact that about seventy-five percent of the work has been done at this point. There are a few things that I can tell you about the actual filming that may be of benefit to you. Some I learned through experience and some I learned through research of the subject. I might say too that Dr. Jerrold Kemp, Director of AV Productions, San Jose College, San Jose, California, is probably the foremost authority on the production of 8 mm teaching films. He has recently revised his book, "Planning and Producing Audio-visual Materials," to include special reference to 8 mm film production. I haven't seen the book, but I have read several articles by Dr. Kemp and found them most informative and practical. Much of my information on production was gleaned from these magazine articles.

I will start the discussion of film production with some basic motion picture shots:

The long shot (LS) - A general view of the setting and subject to orient the viewer.

The medium shot (MS) - A closer view of the subject, eliminating background and other unnecessary details.

The close-up (CU) - Concentration on the subject, or a part of it, excluding everything else from view.

High angle - Camera looking down on the subject.

Low angle - Camera looking up at the subject.

Objective position - Camera aimed toward the subject, from the audience viewpoint.

Subjective position - Camera aimed over the shoulder of the subject.

Moving camera shots include panning, tilting and zooming. They should only be used when the action or subject warrants them.

Before actually shooting any scene, it should be rehearsed as the cameraman follows the action through the viewfinder. As you plan your film and begin shooting, keep in mind that the purpose of the film is to teach. With this in mind:

Keep credits and introduction to a minimum. They teach nothing.

Summarize little if any. Remember the film is five minutes or less in length making it relatively easy for the student to review if he wants or needs to.

The "how to do" scenes must be long enough for the viewer to grasp the point being presented. The length of scenes will depend on the action or required narration. For printed messages a rule of thumb is to be able to read the message three times at a normal rate.

Always shoot scenes slightly longer than actually needed. The extra frames may be helpful when editing.

Emphasize close up detail with a slower pace of action.

Any camera movements should be slow to avoid jerkiness.

Include in the scene only those items required by the action. All distracting background elements and unnecessary movements should be eliminated. A backdrop cloth or curtains may be helpful in eliminating undesirable backgrounds.

> Topic headings and instructions should be included as separate scenes. Avoid overprints, that is, printed instruction over background scenes. Overprint titles and messages require the viewer to split his attention between the scene action and words and may often cause him to miss one or the other. It is also easier to film messages separate from the action.

As I mentioned earlier, if you want reprints the filming should be done with a 16 mm camera because you get a better production. Use commercial Ektachrome 7252 or 7255 film which is designed for duplication. By using 16 mm the original film is always protected for future printing.

When filming on 8 mm and duplicates are to be made, handle and project the original as little as possible because scratches and dirt will appear on prints as visible lines and marks.

To overcome splices in the original, you may "edit the film in the camera" as it is shot. It is difficult to do for it means filming all scenes, including titles in the correct order and of proper length. You must avoid incorrect exposure, improper action, or poor camera use. It can be accomplished with practice and patience.

A STUDY OF YOUNG FARMER PROGRAMS IN TEXAS

Earl S. Webb
Texas A & M University

Dr. Webb presented a short summary of a recently completed study by Len Steakley, a graduate student at Texas A & M.

One purpose of this study was to determine the characteristics of the best Young Farmer Chapters. In an effort to determine these characteristics, the state supervisors of agricultural education were asked to divide their respective young farmer chapters into three groups from best to poorest using a factor listing provided by the researcher. These factors were in three major groups concerning the teacher, the young farmers themselves, and the schools.

Some of the more significant factors as they are associated with the best young farmer chapters are:

1. The tenure of the teacher, the longer the teacher has been in the school the better the young farmer chapter.
2. The attitude of the teacher toward the young farmer chapter, the more favorable his attitude the better the chapter.

In all, there were 22 factors which were significant in determining the best young farmer chapters.

Dr. Webb indicated that copies of the total report would be available within a reasonable length of time.

Dr. Webb distributed copies of a study entitled "Agricultural Mechanics Skills Needed by Farmers in Texas." Additional copies of this study may be obtained from Dr. Webb.

FIFTH SESSION

Chairman: L. D. Virdue, Director
Vocational Education
Southern University

Secretary: Ira A. Dickerson, Instructor
Agricultural Education Department
University of Georgia

INSERVICE RE-TRAINING OF VOCATIONAL EDUCATION PERSONNEL TO AMPLIFY AND ENHANCE THEIR ROLE IN WORKING WITH DISADVANTAGED AND HANDICAPPED LEARNERS

James I. Dawson
Alabama Agricultural and Mechanical University

SUMMARY

The Problem

From twenty to thirty percent of the student population in the United States fall within the "classified" disadvantaged category. One out of every five youths in the rural area and one out of every three youths in the urban area are considered disadvantaged. A significant number of these individuals select some area of vocational education as a chosen vocation. Nevertheless, most vocational education programs are not comprehensive enough to adequately meet the needs of the disadvantaged and handicapped.

Many vocational education teachers do not possess the expertise to effectively understand and teach the disadvantaged and handicapped. As a result of this inadequacy, many disadvantaged and handicapped individuals are suffering from a lack of the proper education and training needed to enter and advance on a job.

Objectives

The general objective of the program was to arm the teachers with the expertise to better understand the various problems of the disadvantaged and handicapped and to provide training and self-exploratory experience in terms of personal needs in teaching these individuals.

More specifically, the program was designed:

1. To further develop an ideal philosophy and commitment of vocational teachers in teaching the disadvantaged and handicapped.

2. To enable vocational education teachers to better understand the disadvantaged and handicapped individuals, and understand their social, cultural and socio-economic problems.

3. To develop an understanding of the psychology of learning of the disadvantaged and handicapped; including psychological, sociological, and cultural influences on learning.

4. To acquaint the teachers with methods and techniques of effectively communicating with the disadvantaged and handicapped.

5. To extend the teachers' expertise in counseling the disadvantaged and handicapped.

6. To further develop the vocational education teachers' ability to motivate the disadvantaged and handicapped.

7. To extend the teachers' knowledge of developing and implementing a program based on special needs of the disadvantaged and handicapped.

8. To develop the ability to utilize community resources in developing and implementing programs for the disadvantaged and handicapped.

9. To enable the teachers to use a variety of measurement and evaluation instruments in determining the strengths and weaknesses of programs for the disadvantaged and handicapped.

10. To better acquaint vocational education teachers with methods and techniques of using individualized instruction for teaching disadvantaged and handicapped students.

Procedures

A consortium was formed consisting of representatives from Alabama A & M University and Auburn University for the purpose of developing and coordinating the program activities.

The participants for the program consisted of thirty vocational education teachers and supervisors who taught a significant number of disadvantaged and/or handicapped individuals.

Twelve teaching consultants were employed to teach the twenty program content areas.

The three-week institute was held from June 27 through August 14, 1970, on Alabama A & M University's Campus. A nine-month institute follow-up program consisting of center visitations and two one-day workshops was developed and implemented.

The administrative staff consisted of a project director, two graduate assistants, (two graduate assistants for the institute and one graduate assistant for the follow-up program) and a secretary, from Alabama A & M University, and two faculty members from Auburn University.

Evaluation

The institute and follow-up program were evaluated by using pretest and posttest evaluative instruments, and institute and workshop rating scales.

The statistical analyses used to determine if there were significant differences and/or relationships between means and variables were: (1) Wilcoxon Matched-Pairs Sign-Ranks Test, (2) Mann-Whitney U Test, (3) Analysis of Variance, (4) Pearson Product Moment Correlation, (5) Correlated t-test, and (6) Spearman Rank Order Correlation.

Findings, Conclusions and Recommendations

The Wilcoxon Matched-Pairs Signs-Rank Test showed a significant difference, at the .05 level, between what the teachers thought "would" indicate the degree of their knowledge relative to teaching the disadvantaged and handicapped from before to after the three-week institute. The Wilcoxon Matched-Pairs Signs-Ranks Test also showed a significant difference at the .01 level, between what the teachers thought "would" indicate the degree of their knowledge of teaching the disadvantaged and handicapped from before to after the institute.

The Mann-Whitney U Test showed a significant difference at the .01 level, between what the teachers thought "would" and "ought" to indicate the degree of their knowledge of teaching the disadvantaged and handicapped before participating in the institute. The Mann-Whitney U Test also showed a significant difference at the .05 level, between what the teachers thought "ought" and "would" indicate the degree of their knowledge of teaching the disadvantaged and handicapped after participating in the institute.

A Spearman Rank Order Correlation and a Correlated t-test showed a positive and significant correlation between what the teachers thought "would" indicate the degree of their knowledge of teaching the disadvantaged and handicapped from before to after the institute.

By Analyses of Variance, no significant difference was found between the participants' mean pre-test and post-test attitude test scores, as measured by a Semantic Differential Scale.

A Pearson Product Moment Correlation showed a positive and significant correlation between the participants' pre-test and post-test cognitive learning (multiple choice) test scores. A correlated t-test also showed a significant difference, at the .01 level, between the participants' mean test scores from before to after the institute.

The participants' evaluation of the institute and two workshops showed mean ratings high enough to conclude that they were of the opinion that the institute and workshops were highly successful in obtaining the stated objectives.

The participants made several relevant recommendations which can be used to improve similar institutes and workshops.

From results of statistical analyses and rating scales, it was concluded that the program (institute and follow-up study) was successful in obtaining the stated objectives.

USING MULTIMEDIA TO TEACH METHODS IN PROFESSIONAL EDUCATION

David G. Craig
University of Tennessee

Background: The demonstration is a commonly used method in teaching. It is usually employed when teaching a skill or manipulative ability. It has broad applications to many types of students as well as to all vocational service areas. Since learning in vocational education involves, among other things, application of knowledge and the development of skill, teachers use the demonstration frequently.

Preservice courses in professional vocational education usually include a unit of instruction or lesson about the demonstration method. Prospective teachers usually read, hear and are tested on how to present a demonstration. Due to the lack of effective media and the knowledge and willingness to use it properly, little visual material is used to supplement the instruction in most vocational education departments. Furthermore, practice and actual use of the demonstration method may be delayed up to one year until student teaching.

There is considerable research and practice to support the hypothesis that learning effectiveness is increased when instruction is supplemented with auditory and visual materials. A computer search of the ERIC documents yielded few studies concerning media and the learning process. It is apparent that the teaching profession is long on practice and short on theory in this particular area.

Problem: The broader problem in this situation is "At what point in the learning process would the use of media be most effective?" Under the circumstances mentioned above, the central question to be answered in

this study is "What effect do multimedia have upon learning to prepare and present a teaching demonstration?"

Rationale: Currently, prospective teachers in vocational education read, hear and are tested about how to present a demonstration. Usually this occurs during a methods course in the junior or senior year. Little visual material is used to supplement the instruction. Following these experiences, up to one year may elapse before the individual has the opportunity to practice a demonstration during student teaching.

Learning may be defined as a self-active process through which the individual becomes changed in behavior. No one can teach anyone anything. Only a learner can learn through his own efforts. Learning is an active, rather than a passive process. When learning has occurred, the individual is different in some way than at a time prior to the learning. Not all learning can be observed or measured. It is desirable to provide means for the learning to become manifested in overt behavior for observation, analysis and evaluation.

Dale's "Cone of Experience" implies that learning effectiveness is increased when instruction is supplemented with auditory and visual materials. Underlying this idea has been the notion that as more of the physical senses are used, the more effective will be the learning. It has been postulated that up to 85 percent of what is learned is learned through the eyes. Studies regarding the learners' ability to retain information suggests that individuals remember only 10 percent of what they read and 20 percent of what they hear. When the seeing or visual dimension is added, retention increases to 50 percent. At least 90 percent is retained when persons show and describe what they are doing as they do it.

Teaching may be defined as the process of creating and organizing situations and experiences in which learners interact with the subject matter to be learned toward desirable ends. There are at least five important aspects of teaching that may be implied from this definition, as follows:

1. There are a number of logical steps that lead from one point to another.
2. The focal point in teaching is the learner and what is to be learned.
3. The major task of the teacher is to identify and plan meaningful learning experiences.
4. Establishing goals and objectives consistent with learner needs is important.
5. Teaching must be concerned with evaluating learner progress toward the goals of instruction.

Before the turn of the century, Herbart identified several steps in the instructional process. Four of these steps have been widely accepted and used in vocational education as follows: (1) preparation, (2) presentation, (3) application, and (4) evaluation. This philosophical-based process is supported by a number of teaching and learning theories.

The above statements suggest research procedures based upon the following: (1) clear goals, (2) active involvement, (3) use media affecting two or more of the physical senses, (4) evaluate frequently, and (5) utilize a step-by-step process.

Research Design: The population for this study included all junior students enrolled in agricultural, business, distributive, home economics and industrial education. All students took a pretest to determine their current knowledge and experience with the demonstration method. Following the pretest each student was assigned to one of two groups by using a table of random numbers.

Group one, or the experimental group, observed and listened to the sound on slide presentation, were given demonstration plan guide sheets and observed three model demonstrations on video tape. Group two, or the control group, listened to a lecture, participated in brief discussion during the lecture and were also given demonstration plan guide sheets. Instructional time was monitored carefully for each group so as not to exceed five hours.

There were two phases to evaluate student behavioral change. The first phase of evaluation involved administering the posttest written examination. It was equivalent to the pretest except that the questions were rearranged to reduce memory and other historical effects.

The second phase concerned performance evaluation. The demonstration plan of each student was evaluated according to a lesson plan checklist. A maximum of three pages were allowed for the demonstration plan. Two qualified evaluators, thoroughly knowledgeable about quality lesson planning of demonstrations, checked and scored each plan. Then each student implemented his plan before a small group of peers within a time limit of ten minutes. These demonstrations were video-taped. Using a performance demonstration checklist, the two qualified evaluators mentioned above scored the demonstrations using the video replay. These two checklists, lesson plan and classroom teaching, were averaged for a total performance score.

Procedures:

1. Preparing the content outline. Using the basic instructional steps conceived by Herbart as a guide, the following key steps were applied to the demonstration method as follows: preparation, presentation, application and follow-up. During the past five years of supervised

teaching experience with student teachers, the author developed and refined subpoints for the key steps. The outline of detailed content of how to plan and present a teaching demonstration is reflected in a statement of "Aims and Objectives." (See Appendix A.)

2. Stating the aims and objectives. The aims are stated in broad terms and emphasize preparing a teaching plan outline and presenting a complete demonstration. The time limit and nature of learning situation is emphasized.

The objectives are stated in performance terms and indicate competencies to be achieved. Each objective is designed to contribute to accomplishing the aims.

3. Writing the pretest. The performance verbs in the aims and objectives were used as a guide in writing the pretest. (See Appendix B.) The posttest contains the same questions as does the pretest. The posttest questions were rearranged randomly to reduce practice and historical effects upon the students.

4. Writing the lecture notes. The lecture notes are a facsimile of the content outline, mentioned above. Paragraphs and complete sentences are used. A few marginal notes denote examples and chalkboard illustrations to use. Considerable effort was exerted to assure the same lecture presentations to different groups at different times.

5. Colored slide development, organization and narration. The story board approach was used to plan the visual content, sequence and narration of the colored slide series. The story board is an arrangement of four-by-six cards each portraying a title, diagram of colored slide visual content and coordinated narration. The resulting slide series consisted of 146 slides and 60 minutes of narration.

The colored slide content and narration had the following divisions concerning demonstrations: (1) definition, (2) four procedural steps, (3) advantages, (4) disadvantages, (5) when to use, (6) how students learn, (7) planning, (8) preparation, (9) presentation, (10) application, and (11) evaluation.

6. Model demonstrations on video tape. The planning and video taping of the model demonstrations utilized proportionately the most time and effort of any phase of this study. The term "model" means an ideal example. A total of 14 model demonstrations were video taped in the five vocational areas. Three tapes were made of four of the vocational areas and two in the fifth.

Cooperative and experienced teachers for these model demonstrations were solicited through department heads of the five vocational areas. Eleven beginning teachers and superior student teachers and three experienced teachers were selected to make the model tapes. They received brief oral instructions and were given to study the "Mini Lesson Plan Guide--The Demonstration Method" (Appendix C) and the "Mini Lesson Plan and Teaching Guide--Demonstration Method" (Appendix D). All tapes were made in public educational institutions (13 were in secondary schools) using typical classrooms, laboratory and shop and normal students.

The lesson plan guides were revised from those developed and used by the author during recent years of evaluating student teaching and using video tape. The revisions were based also on the aims and objectives used in this study. The "Evaluation of Teaching Using the Demonstration Method" form was developed from the above mentioned planning guides (Appendix E). The point values were somewhat arbitrarily assigned.

Findings: Of the more than 50 students contacted to participate in the study, only 26 completed the pretest, 16 finished the posttest and 11 the performance test. With the two groups approximately equal in size early in the study, one-half of the control group and 80 percent of the experimental group completed all phases of the evaluation (see Table I and Table II).

Although there was a difference between the groups on the pretest mean scores, it was insignificant. This suggests that there was considerable similarity between the two groups.

There was a greater mean difference in the experimental group as a result of the posttest. However, this difference was not significant when compared to that of the control group. The data suggest that a two-hour lecture effect similar learnings as do sound on slides and video tape models when measured by pencil and paper test.

This finding is further substantiated by the fact that both the lecture method and the multimedia approach resulted in significant changes using the written posttest. The control group had a standard deviation of 13.982 and a t value of 22.59, whereas the experimental group had a standard deviation of 11.007 and a t value of 67.53.

A comparison of performance test means shows no significant difference between the control and experimental group. This finding further supports the apparent similarities between the two groups. Thus the learning effect of a lecture compared with sound on slides and video tape may extend beyond written evaluation to performance type tests.

Conclusion: Using the sound on slide and video tape arrangement, a significant amount of learning behavior was measured with written tests. However, when this procedure was compared with the lecture method no

TABLE I

CONTROL GROUP

Student	Pretest	Posttest	Difference	Performance Test
5	45	65	+20	47
14	25	66	+41	--
16	42	58	+16	--
17	39	72	+33	--
22	54	72	+18	62
25	65	64	- 1	47
Mean	45		22.167*	52
	N=6		N=3	

TABLE II

EXPERIMENTAL GROUP

Student	Pretest	Posttest	Difference	Performance Test
1	54	71	+17	--
3	39	68	+29	57
4	58	56	- 2	39
11	42	85	+43	--
12	43	63	+20	60
15	49	71	+22	30
19	48	80	+32	27
20	48	79	+31	51
21	55	77	+22	87
24	36	55	+19	58
	47.2		25.3*	51.125
	N=10		N=8	
Standard deviation	5.265		6.66	11.88
t value	-0.436		-0.365	0.0736

* Adjusted higher to eliminate negative scores.

significant differences were found when comparing the control and experimental group on the bases of pretests, posttest differences and performance.

Future Study: An analysis of variance could be used in this study to determine variance within the control and experimental study. Also within this study are additional data for analysis concerning student reactions to the multimedia approach and lectures as well as the teaching experience and education courses completed for each participant.

The sound on slide series is being revised to reduce the verbal narration and to increase the interaction of the learner with the visual content. In the near future, a study will be conducted to compare the lecture method with sound on slides alone and with video tape alone.

The basic question concerning when in the learning process to most effectively use media provides a basis for endless study and experimentation.

APPENDIX A

MULTI-MEDIA PROJECT -- "HOW TO GIVE A DEMONSTRATION"

AIMS AND OBJECTIVES

Following the lecture-discussion or sound on slides and video tape lessons, THE STUDENTS WILL BE ABLE TO:

AIMS:

1. Prepare a complete teaching plan outline utilizing the demonstration method.

2. Present a complete demonstration in ten minutes to a small group of peers.

OBJECTIVES:

1. Identify five reasons for planning in advance.

2. Arrange the detailed steps of planning and teaching in correct order when using the demonstration method.

3. List three advantages of using a demonstration.

4. List two disadvantages of using a demonstration.

5. Given a number of teaching topics, select the correct ones most appropriate in which to use a demonstration.

6. List five factors that affect the decision to use a demonstration.

7. Identify five characteristics of the demonstration method.

8. Distinguish between a major unit and lesson title.

9. Analyze the situation and class that you are now in, then make five appropriate statements as a basis for your demonstration plan and lesson.

10. Write one example of a performance-type objective.

11. Identify and prepare or secure free and inexpensive and other materials needed to perform a demonstration.

12. List at least two types of reference materials for a demonstration.

13. Identify three important parts of an effective introduction.

14. State one effective motivational technique.

15. Arrange properly key parts of the "T" approach when planning the presentation phase of the demonstration.

16. Identify two effective ways to evaluate student achievement in demonstration.

17. Describe briefly how students learn.

18. Describe the importance of involvement in learning.

19. Identify three ways that a teacher can involve students actively in learning.

20. List in correct order the major steps in planning and presenting a demonstration.

APPENDIX B

MULTI-MEDIA PROJECT -- "HOW TO GIVE A DEMONSTRATION"

PRE-TEST -- How to Plan and Present a Demonstration

Name _____ Voc. Area _____ Date _____

This test is designed to find out how much you know about using the demonstration method in teaching. Please read each question carefully before you answer. Try to complete the test in 40 minutes.

1. Identify the five characteristics which best describe an effective demonstration. Place a checkmark in the blanks provided.

_____ talk and tell	_____ key steps done in any order
_____ finished product	_____ students listen
_____ little planning needed	_____ students are corrected and
_____ systematic method	praised
_____ showing how to do	_____ teacher oriented
_____ students actively involved	

2. List three important advantages of using a demonstration in teaching:

   a.

   b.

   c.

3. List two important disadvantages of the demonstration method:

   a.

   b.

4. From the following teaching situations, select the ones in which the demonstration method could effectively be used. Place a checkmark in the blanks provided.

_____ how to check body temperature using the rectal method
_____ the parliamentary procedure for taking a motion from the table
_____ when to fertilize a lawn
_____ developing an attitude of safety when using chemicals
_____ the steps for sewing in a zipper
_____ defining ecology
_____ deciding upon the best approach to use in selling a product
_____ how to operate the adding machine
_____ making an arm splint
_____ determining which letter head style to use

5. List five important factors to be considered by a teacher before using the demonstration method:

a.

b.

c.

d.

e.

6. Describe briefly how students learn.

7. Why is student involvement crucial to learning?

8. Identify three effective ways in which a teacher may involve students in a demonstration in order to encourage learning to take place:

a.

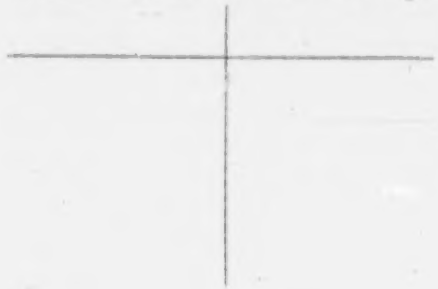
b.

c.

9. List the major steps in correct order when using the demonstration method.

10. Diagrammed below is the "T" approach which is suggested when planning the presentation phase of a demonstration. Place the letters of the correct terms on the left in the proper places of the "T" on the right.

a. Safety and/or precautions
b. Key points
c. Facts and figures
d. Student involvement
e. Procedures
f. Use of educational media
g. Questions
h. Subject matter outline
i. Show and tell



11. Two effective ways in which student achievement can be evaluated following a demonstration are as follows:

a.

b.

12. An effective introduction to a demonstration usually has three important parts. What are they?

a.

b.

c.

13. State one effective motivational technique when demonstrating.

14. Which of the following are correct reasons for planning a demonstration in advance. (Place a checkmark in the blanks provided.)

_____ it is THE thing to do
_____ saves time
_____ avoids forgetting
_____ to please your supervisor
_____ builds self-confidence
_____ improves organization
_____ principals expect it
_____ prevents mistakes

15. A major distinction between a major subject matter unit and a lesson plan title is as follows:

16. Analyzing the teaching-learning situation is a necessary step in planning a demonstration. Identify five aspects of any situation that need to be considered prior to teaching.

a.

b.

c.

d.

e.

17. Place in correct order the detailed steps one should go through in planning to use the demonstration method. Place a "1" in front of the first step, a "2" in front of the second step, and so on.

_____ determine objectives
_____ cite references used
_____ review key points
_____ state lesson title
_____ involve students in application (doing) of skill
_____ analyze situation
_____ introduce lesson
_____ state broad subject area
_____ give test
_____ present and discuss key points
_____ list materials and equipment needed
_____ guide students with praise and correction
_____ have students read objectives

18. Write one example of a performance-type teaching objective in your vocational subject area.

19. Identify three local community sources of free and inexpensive teaching aids and materials.

a.

b.

c.

20. Identify two types of reference materials that can be used to plan and present a demonstration.

a.

b.

21. True/False Questions. Circle the word true or false preceding each statement.

true false The demonstration is synonymous with the show-and-tell method.

true false The demonstration is the best all-round method to use.

true false Demonstrations require more teacher preparation than other methods.

true false Teacher objectives are more important than student objectives.

true false The major purpose of an introduction is to state a teaching objective.

true false A demonstration has limited value in the classroom.

true false The major factor determining when to use a demonstration is the nature of the subject matter.

true false Demonstrations are skill-oriented.

true false The demonstration method is limited to use in vocational education.

true false Students can learn at a more rapid rate by doing than by listening.

APPENDIX C

MINI LESSON PLAN GUIDE - DEMONSTRATION METHOD

PREPARATION:

1. Major Unit:
   broad

2. Lesson Title:
   narrow
   specific
   can be handled in 20 minutes

3. Analysis of Situation:
   importance of subject matter
   age level of students and experience with subject matter
   occupational or other need for students to know and do this skill
   mental and physical abilities of students
   list five statements

4. Objectives:
   specific
   performance, behavioral
   list one or two

5. Materials Needed:
   equipment
   visuals
   tools
   supplies

6. References
   variety
   current, up-to-date
   reading level appropriate to student level
   list two or more

7. Introduction:
   use transition from previous experience
   motivate with questions, visual and involvement
   clarify objectives

PRESENTATION:

1. Subject Matter	Procedures
outline of content key points, steps, questions	what the instructor will do show and tell involvement visuals

APPLICATION:

two or more students try out (above) steps
instructor observes and/or guides
instructor makes corrections and suggestions

EVALUATION:

summarize key points
pencil/paper and/or performance test

APPENDIX D

MULTI-MEDIA PROJECT -- "HOW TO GIVE A DEMONSTRATION"

MINI LESSON PLAN AND TEACHING GUIDE -- DEMONSTRATION METHOD

(complete this guide and give to instructor after teaching your 10-minute demonstration)

PREPARATION:

Teacher alone

1. Decide on a skill in your vocational interest area that can be demonstrated in 10 minutes.

2. Analyze situation:
   a.
   b.
   c.
   d.
   e.

3. Determine objectives:
   a.
   b.

4. Materials needed:
   a.
   b.
   c.

5. References:
   a.
   b.

Teacher with class

1. Major unit:

2. Lesson Title:

3. Introduction

   a.

   b.

   c.

PRESENTATION:

Subject Matter Outline	Procedures

APPLICATION:

1. Student Activities

2. Teacher Activities

EVALUATION:

1. Summary

2. Test

APPENDIX E

MULTI-MEDIA PROJECT -- "HOW TO GIVE A DEMONSTRATION"

EVALUATION OF TEACHING USING THE DEMONSTRATION METHOD

Name _____ Voc. Area _____ Date _____

Time _____ Class _____ Live _____ Video _____ Lesson Title _____

_____ PREPARATION - 25 points

_____ Teacher alone - 10

_____ 1. Decision on a skill
_____ 2. Analyze situation
_____ 3. Determine objectives
_____ 4. Materials needed
_____ 5. References

_____ Teacher with class - 15

_____ 1. Major unit
_____ 2. Lesson title
_____ 3. Introduction
_____ a. Transition
_____ b. Objective(s)
_____ c. Motivation

_____ PRESENTATION - 25 points

_____ Subject Matter Outline (9) _____ Procedures (16)

_____ Content	_____ Show and tell
_____ Key steps	_____ Involvement
_____ Questions	_____ Media
	_____ Precautions/Safety

_____ APPLICATION - 25 points

_____ 1. Student Activities (12)
_____ a. At least one student tries skill
_____ b. Questions
_____ c. Nature of involvement

_____ 2. Teacher Activities (13)
_____ a. Correcting students
_____ b. Praising students
_____ c. All students assisted

_____ EVALUATION - 25 points

_____ 1. Summary (15)
- _____ a. Is used
- _____ b. Key points emphasized
- _____ c. Involvement
- _____ d. Relates to objective
- _____ e. Transition

_____ 2. Test (10)
- _____ a. Oral/written
- _____ b. Performance

VOCATIONAL GUIDANCE STUDIES

Earl S. Webb
Texas A & M University

Dr. Webb presented a summary of a recently completed study concerning some of the guidance aspects related to the Pre-Employment Laboratory Training Program for Agricultural Machinery Mechanics. Dr. Webb emphasized the need for guidance counseling in vocational education and mentioned the lack of guidance for many non-college bound students.

The study included 383 students enrolled in the Agricultural Machinery Mechanics curriculum. The questionnaires were administered by the teachers to their students and here is a summary of some of the findings:

1. In response to the question, "Who influenced you to take this course?" student responses were:

   56% - no one
   12% - teacher of the course
   2.2% - guidance counselor
   36% - father
   1 student - mother

2. The students were asked what guidance activities they had participated in:

   65.5% - had taken no aptitude tests
   34% - had tests but less than one-half of these students had received any counseling after the tests
   29 of the 383 - received some counseling from the school guidance persons

3. When questioned about work experience and part time work:

   85% - said they had a part time job
   85% - said they had no summer work with a mechanic

4. When questioned about other guidance materials and activities, the students responded as follows:

55% - had used literature concerning mechanics and mechanics work

55% - had seen films about mechanics and their work

28.5% - had been in classes where employers had discussed occupations and employer/employee relations

62.7% - had received information concerning schools or other means where further training could be obtained

32.9% - had been taken by the agriculture teacher on field trips to businesses employing Agricultural Machinery Mechanics

38.7% - had received information on how to conduct yourself at a job interview

51.0% - had received instruction on preparing a letter of application. The English and typing teachers generally provided this instruction

5. When questioned as to their plans upon completion of high school, the students responses were:

    a. Over twice as many as any other number said they planned to enter college.

    b. 14% said they planned to enter a trade.

6. When questioned about how well has the school helped you in your career choice. On a rating scale ranging for very much help down to no help the student mean response fell between some and no help.

7. When questioned as to how the school can provide more help in making a career choice, the student responses were:

    a. more vocational courses - was mentioned most by students
    b. more field trips
    c. more career information
    d. more counseling

In summary, Dr. Webb said we must provide vocational teachers with more guidance concepts so that they can work more effectively with school guidance persons. That a team approach is the best guidance method. Dr. Webb indicated that 17 or 18-year-olds aren't ready to make permanent career choices but we can help them by providing exploratory experiences--in reality a guidance function.

CONFERENCE SUMMARY

James P. Key
Oklahoma State Univereity

Dr. Key led a group discussion as a conference summary. Some of the more pertinent comments arising from this discussion were:

-- Dr. Tom's keynote address very well set the stage for the entire conference and further set an optimistic opening for the conference.

-- It was observed by several of the group that we can't solve all of our problems with evaluation.

-- We should have more follow-up of graduates of programs regardless of the occupations which they enter.

-- We need more sharing of information about studies in progress. Possibly on an informal basis.

-- Some felt there were indications that USOE decision-makers are slowing down on their evaluation push.

REPORT ON AVA RESEARCH COMMITTEE ON AGRICULTURAL EDUCATION AND PLANS FOR THE 1972 SOUTHERN RESEARCH CONFERENCE IN AGRICULTURAL EDUCATION

Charlie M. Curtis
Louisiana State University

Dr. Curtis mentioned the National Summaries of Studies are available from the Interstate Publishers and anyone interested should contact Russ Guin.

Dr. Curtis requested that all summaries of studies and reports of studies in progress be submitted to him for editing and compiling by October 15, 1971.

In response to the question, "What should the AVA Research Committee do?" the following suggestions were made:

1. Do a better job of compiling studies completed and in progress.
2. To help accomplish this, Dr. Curtis said letters requesting this information would be sent to all Agricultural Education personnel in all states.
3. Send out a listing of studies in progress earlier if possible.
4. Dr. Carpenter suggested the possibility of a regional research project on establishing performance standards for all of Agricultural Education. It was suggested that each state work on a segment of Agricultural Education, e.g., one state work in the area of the student teaching program.

Dr. David C. Craig made the motion that a committee be set up to develop a list of items and priorities to be decided on at the next meeting. It was further moved that at least three rough proposals of a maximum length of two pages be developed.

Dr. Howard I. Downer seconded the above motion. The motion was then discussed and passed.

The following committee was appointed: Dr. David G. Craig, Chairman; Dr. James F. Shill, Dr. Vanik S. Eaddy, Mr. Eldon E. Heathcott, Dr. J. Alex Hash.

Plans for the 1972 Research Conference

Dr. James F. Shill invited the group to Mississippi State University for the 1972 conference.

The time for the conference in 1972 was determined to be the last week of July and will probably be held on Tuesday, Wednesday, and Thursday of that week.

It was moved and seconded that the group accept the invitation to hold the 1972 Research Conference at Mississippi State University. There was no further discussion and the group voted to accept Dr. Shill's invitation.

The group tentatively set Texas A & M as the site for the 1973 Research Conference.

The meeting was adjourned at 12 o'clock noon, July 30, 1971.

20TH ANNUAL SOUTHERN RESEARCH CONFERENCE

IN AGRICULTURAL EDUCATION

Clemson University - 1971

Attendance Report

Name	Position/Department	Institution
Robert T. Benson	Asst. Prof. Voc. Ed. Media Center	Clemson
W. C. Bowen	Assoc. Prof. Agr. Education	Clemson
Walter A. Cameron	Asst. Prof. Agr. Education	Clemson
Earl T. Carpenter	Prof. and Head, Agr. Education	Clemson
James E. Christiansen	Assoc. Prof. Agr. Education	Texas A & M
David G. Craig	Teacher Education, Agr. Education	Univ. of Tennessee
Charlie M. Curtis	Teacher Education, Agr. Education	Louisiana State
James I. Dawson	Head Teacher Educator, Agr. Educ.	Alabama A & M
Howard I. Downer	Assoc. Prof. Occupational Ed.	Univ. of Tennessee at Martin
Vanik S. Eaddy	Coordinator, Dept. Voc. & Adult Ed.	Auburn
J. Alex Hash	Assoc. Prof. Agr. Education	Clemson
Eldon E. Heathcott	Asst. Prof. Agr. Education	Murray State
Richard K. Hill, Jr.	Asst. Prof. College of Educ.	V.P.I.
William L. Hull	R & D Specialist, Diffusion Process Program Area	Ohio State
C. G. Hutchinson	Teacher of Agriculture	Conway High School
Lloyd Jacks	Head, Agr. Education	Murray State
Willie F. Jackson	Head, Agr. Education	Alcorn A & M
Arthur Jensen	Director, Voc. Ed. Media Center	Clemson
Cecil H. Johnson, Jr.	State Director, Voc. Education	S.C. State Dept.
James P. Key	Asst. Prof. Agr. Education	Oklahoma State

Harold F. Landrith	Dean, College of Education	Clemson
Texton R. Miller	Assoc. Prof. Agr. Education	N. C. State
Douglas Patterson	Asst. Prof. Agr. Education	Univ. of Florida
John H. Rodgers	Professor Agr. Education	Clemson
James F. Shill	Assoc. Prof. Agr. Education	Miss. State
Bruce Simpson	Research Asst. Voc. Education	Univ. of Arkansas
J. Duffie Stone	Teacher of Agriculture	Cross High School
Frank R. Stover	State Supervisor Agr. Education	S.C. State Dept.
Frederick K. T. Tom	Professor Agr. Education	Cornell
L. D. Virdure	Director Vocational Education	Southern Univ.
Earl S. Webb	Teacher Education, Agr. Educ.	Texas A & M
Robert H. White	Executive Director S. C. Advisory Council	Clemson
William H. Wiley	Dean, College of Agr. Sciences	Clemson